THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON *Telephones*—GERRARD 4314 & 4315 *Offices*—423, Strand, London, W.C.2

No. XVI. OF VOL. II., 1924. **No. 5277. Vol. CCVII.** LONDON, SATURDAY, OCTOBER 18, 1924. Founded 1823. Registered as a Newspaper. Published Weekly. **Pp. 120 – Price 1s.** Annual Subscription Inland £2 2s. Abroad £2 10s.

NEW BOOKS.

ULTRA-VIOLET RAYS IN THE TREATMENT AND CURE OF DISEASE.
By PERCY HALL, M.R.C.S., L.R.C.P.
With Introductions by Sir HENRY GAUVAIN, M.A., M.D., and LEONARD E. HILL, M.B., F.R.S.
Demy 8vo. 128 pp. 17 plates. 7s. 6d. net.

THEORY AND PRACTICE OF THE STEINACH OPERATION.
By PETER SCHMIDT, M.D. Berlin.
Introduction to the English Edition by J. JOHNSTON ABRAHAM, C.B.E., D.S.O., M.A., M.D. Dub., F.R.C.S. Eng.
Crown 8vo. 7s. 6d. net.
LANCET.—"One of the best scientific expositions of the subject available to British readers."
London: W. Heinemann (Medical Books), Ltd., 20, Bedford-st., W.C.2.

By WILLMOTT EVANS, B.S., B.Sc., F.R.C.S.,
Consulting Surgeon, Royal Free Hospital.

DISEASES OF THE BREAST.

"Clearly written . . . admirably illustrated . . . thoroughly practical."—THE LANCET.
Demy 8vo. 508 pages,
with 106 Illustrations (15 Coloured). 27s. 6d. net.
University of London Press, Ltd., 17, Warwick-square, London, E.C.4.

OXFORD MEDICAL PUBLICATIONS.

A TEXTBOOK OF THE PRACTICE OF MEDICINE

Including Sections on DISEASES OF THE SKIN and PSYCHOLOGICAL MEDICINE.
Tropical Diseases are also included.
By various Authors who have made a special study of the different branches of Medicine.
Edited by FREDERICK W. PRICE, M.D., F.R.S. Edin.,
Senior Physician to the Royal Northern Hospital; Physician to the National Hospital for Diseases of the Heart, London.
Demy 8vo. Cloth. Illustrated. 1792 pages. 35s. net.
Oxford University Press.
Humphrey Milford, Amen House, London, E.C.4.

BY LIEUT.-COL. ROBERT HENRY ELLIOT,

M.D., B.S. Lond., F.R.C.S. Eng., I.M.S. retd.

A TREATISE ON GLAUCOMA.
2nd Edition, Revised and Enlarged. 30s. net.

TROPICAL OPHTHALMOLOGY.
With 7 Plates and 117 Illustrations. 31s. 6d. net.
Spanish and French Editions, 1922.

THE CARE OF EYE CASES: 12s. 6d. net.
A MANUAL FOR NURSES, PRACTITIONERS, AND STUDENTS.
Oxford University Press.

GLAUCOMA: 4s. net.
A HANDBOOK FOR THE GENERAL PRACTITIONER.

THE INDIAN OPERATION OF COUCHING FOR CATARACT
7s. 6d. net. H. K. Lewis and Co. Ltd.

By LESLIE THORNE THORNE, M.D., B.S., &c.

NAUHEIM TREATMENT OF DISEASES OF THE HEART AND VESSELS IN ENGLAND.

Sixth Ed. Enlarged and re-written, much new matter.
Pp. viii. + 232. With 27 Photographs of RESISTANCE-Exercises and 108 other Illustrations. Polygraphs, &c. Price 7s. 6d. net.
"It is the best and most practical work on the subject."
—WEST LONDON MEDICAL JOURNAL.
Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, London, W.C.

BY W. SOLTAU FENWICK, M.D.

DYSPEPSIA: Its Varieties and Treatment.
(New Edition Shortly)
W. B. Saunders, Ltd., 9, Henrietta-street, W.C. 2.

CANCER AND TUMOURS OF THE STOMACH.
362 pages. 10s. 6d.
ULCER OF THE STOMACH AND DUODENUM.
392 pages. 10s. 6d.
J. & A. Churchill, 7, Great Marlborough-street, W.1.

THE LANCET EXTRA NUMBERS.

For important announcement see pp. 9, 10, 11, & 12.

With 79 Illustrations on 40 Plates and 1 Text-figure. Demy 8vo. 12s. 6d. net; postage 6d.

INTERNAL DERANGEMENTS OF

THE KNEE-JOINT.

THEIR PATHOLOGY AND TREATMENT BY MODERN METHODS.
By A. G. TIMBRELL FISHER, M.C., F.R.C.S. Eng.,
late Hunterian Professor, Royal College of Surgeons of England; Surgeon (with charge of Out-Patients) Seamen's (Dreadnought) Hospital, Greenwich, &c. With Foreword by Sir ARTHUR KEITH, and Notes by Sir ROBERT JONES.
"The best and most complete account ever written ..... of value to all practitioners."—CLINICAL JOURNAL.
"Mr. Fisher has met the bonesetter on his own ground and defeated him."—JOURN. OF R N. MED. SERVICE.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C. 1.

FOR THE PRACTITIONER

ABT'S PEDIATRICS.

"WITHOUT A RIVAL."

See Saunders' Advertisement on Page 7.

BY CHARLES J. HEATH, F.R.C.S.,

Consulting Aural Surgeon, Metropolitan Asylums Board; late Surgeon, Throat Hospital, Golden Square, London.
OTITIS MEDIA (MASTOID DISEASE):
ITS SYMPTOMS, DIAGNOSIS, PROGNOSIS AND TREATMENT BY MODERN METHODS, thus saving the hearing of the discharging ear with perforated drumhead.
Price 5s. net.
"We have no hesitation in describing Heath's paper as epoch-making."—ST. BARTHOLOMEW'S HOSPITAL JOURNAL.
"This work is recommended to specialists and even to those who are not."—L'OTO RHINO LARYNGOLOGIA INTERNATIONALE.
Baillière, Tindall & Cox, 8, Henrietta-street, London, W.C. 2.

BY C. HAMILTON WHITEFORD,

M.R.C.S., L.R.C.P.
SURGICAL "DONT'S" (AND "DO'S"). Price 3s. net.
"Full of practical wisdom."—BRITISH JOURNAL OF SURGERY.
"Much sound advice, not to be found in text-books."—MEDICAL PRESS & CIRCULAR.

ACUTE APPENDICITIS. Price 4s. net.

London: Harrison & Sons, Ltd., 44-47, St. Martin's-lane, W.C. 2.

BOOKS BY FRANK KIDD, M.A.,

M.Ch. Cantab., F.R.C.S. Eng.

COMMON INFECTIONS OF THE FEMALE URETHRA AND CERVIX (in conjunction with DR. MALCOLM SIMPSON).
Based on an analysis of 650 cases treated at the London Hospital Venereal Clinic. 7s. 6d. net.

COMMON INFECTIONS OF THE KIDNEYS
WITH THE COLON BACILLUS AND ALLIED BACTERIA. 18s. net.
Oxford University Press,
Humphrey Milford, Amen House, London, E.C. 4.

COMMON DISEASES OF THE MALE URETHRA. 6s. net.

URINARY SURGERY. A REVIEW. 7s. 6d. net.
Longmans, Green & Co., 39, Paternoster-row, London, E.C. 4.

Fine products—each the original and standard in its field—from the celebrated laboratories of E. Schering.

ATOPHAN

Promotes the excretion and arrests the formation of uric acid.
Since 1911 the standard remedy in **Rheumatism, Gout, Neuritis, Sciatica, etc.**
A powerful analgesic, antiphlogestic and antipyretic.
The following are valuable combinations:

ICTEROSAN : For catarrhal jaundice, cholangitis and cholecystitis.

ARCANOL : For influenza and all diseases associated with chill.

ATOPHANYL for Injection : For rheumatism, sciatica, neuralgia, neuritis, etc.

Samples and Literature on request from the importers:—

A. & M. ZIMMERMANN, Ltd., 3, Lloyd's Avenue, London, E.C. 3

THE STRAPPING THAT GRIPS.

LESLIES ZŌPLA Zinc Oxide Plaster

A tenaciously self-adhesive Plaster which will not slip, however great the strain. Antiseptic.

NON-IRRITATING AND THOROUGHLY RELIABLE.

On white and flesh colour cloths, also on holland, on spools and in rolls. SAMPLES ON REQUEST.

USE ALSO OUR HOLLAND STRAPPING. THE ORIGINAL AND STILL THE BEST.

LESLIES LTD., High Street, Walthamstow, LONDON, E.17.

VALENTINE'S PREPARATION
NUTRIO PRIME
MEAT JUICE.
The result of an original Process of Preparing Meat, and extracting its Juice by which the elements of nutrition are obtained in a state, ready for immediate absorption.
DIRECTIONS-Dissolve one teaspoonful of the Preparation in two or three tablespoonfuls of cold or warm water. The use of boiling water changes the character of the preparation.

Valentine's Meat-Juice

For **Quieting** the **Irritable Stomach**, for **Aiding** the **Digestion** and for **Sustaining** and **Strengthening. Valentine's Meat-Juice** is **Extensively Employed** in the treatment of

Phthisis.

Dr. Gouel, *Physician in Chief of the Villepinte Hospital for Consumption, Paris, France :* "VALENTINE'S MEAT-JUICE succeeds well in cases of Anæmia and in the treatment of Tuberculosis in an advanced stage when the stomach is intolerant."

Dr. Pietro Borromeo, *Physician and Surgeon of the Hospital of Rome, Italy :* "I have tried VALENTINE'S MEAT-JUICE in the Tuberculosis Division of the Hospital of the Holy Spirit, and have proved the great advantages that it renders for the nutrition of the consumptive. Pleasant to the taste of the most fastidious of the sick, it does not irritate the stomach; but stimulates the peptogastric functions so as to improve notably the appetite, even in cases of continuous and high fever and extreme loss of strength."

For Sale by European and American Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY.

D 156 **RICHMOND, VIRGINIA, U.S.A.**

THE LANCET

No. 5277. LONDON, SATURDAY, OCTOBER 18, 1924. Vol. CCVII.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

THE EVOLUTION of Neurology and its Bearing on Medical Education. By E. FARQUHAR BUZZARD, M.D., F.R.C.P. 789

AN ADDRESS on Individuality in Medicine. By Sir THOMAS HORDER, Bart., M.D., F.R.C.P.... 819

ORIGINAL ARTICLES.

Some Observations on the "Modern Theory" of Renal Secretion, with an Account of a Case of Renal Glycosuria. By A. P. THOMSON, *M.C.*, M.D., M.R.C.P. 792

Subacute Infective Endocarditis: A Clinical Study of Thirty Cases. By JOHN GRACIE, M.B., F.R.F.P.S. 795

The Therapeutic Effects of Ultra-Violet Radiations. By C. LEE PATTISON, M.B., B.S. 798

The Use of Pituitary Whole Gland in Chronic Constipation. By BERNARD MYERS, C.M.G., M.D., M.R.C.P. 799

CLINICAL AND LABORATORY NOTES.

Congenital Malformation of Hands. By Surg. Rear-Admiral C. MARSH BEADNELL, C.B., M.R.C.S.—(*Illustrated*).. 800

A Curious Case of Partial Uterine Inversion. By H. J. DREW SMYTHE, *M.C.*, M.B., M.S., F.R.C.S. 800

MEDICAL SOCIETIES.

Royal Society of Medicine: Section of Ophthalmology: Tints and Their Values 801
Section of Pharmacology and Therapeutics: Universal Cures, Ancient and Modern 802

Medical Officers of Schools Association: Nutrition of the Growing Child.... 804

St. Mary's Hospital Medical School: Post-Graduate Course: Diet and Disease.—Surgical Treatment of Gastric Ulcer.—Acute Right Hypochondriac Pain.—Puerperal Fever.—Pulmonary Tuberculosis 806

REVIEWS AND NOTICES OF BOOKS.

Chemistry of the Blood in Clinical Medicine. By O. L. V. de Wesselow, M.B., F.R.C.P. 808

Modern Methods in the Diagnosis and Treatment of Renal Disease. By Prof. Hugh MacLean, M.D., D.Sc. 808

1700 Miles in Open Boats. By Cecil Foster 809

Practical Dental Histology and Bacteriology. By H. C. Malleson, L.R.C.P., L.D.S., and A. Bulleid, L.R.C.P., L.D.S. 809

The Treatment of the Common Disorders of Digestion. By John L. Kantor, Ph.D., M.D..... 810

Essays and Addresses on Digestive and Nervous Diseases and on Addison's Anæmia and Asthma. By Arthur F. Hurst, M.D. 810

Diagnostik und Therapie der Lungen- und Kehlkopf-tuberkulose. By Dr. H. Ulrici..... 810

Die Behandlung der Kindlichen Lungentuberkulose mit dem Künstlichen Lungen-Pneumothorax. By Dr. H. Eliasberg and Dr. P. Cahn 810

Die Klinik der Beginnenden Tuberkulose Erwachsener. Vol. II., Der Formenkreis der Tuberkulose. By Prof. Wilhelm Neumann 810

LEADING ARTICLES.

A HOSPITAL CLEARING HOUSE 811

PHARMACEUTICAL EDUCATION 812

THE PSYCHOPATHOLOGY OF ACCIDENTS 812

A GREAT MEDICAL EDITOR 813

MEDICAL CANDIDATES FOR PARLIAMENT 813

ANNOTATIONS.

The Scottish Board of Control 814

Polarimetric Estimation of Sugar in Urine..... 814

Microscopic Illumination.. 814

Carcinoma of the Stomach in Young People 815

Hookworm Survey in Siam 815

Dr. Kerr's Retirement ... 816

Prevention of Heart Disease in New York 816

The Cancer Campaign in Norway..... 816

Typhus and *Typhus* 817

The Clinical Thermometer as Noxa 817

MODERN TECHNIQUE IN TREATMENT.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCII.—The Treatment of Hæmorrhage in the New-Born Infant. By Dr. J. N. CRUICKSHANK..... 818

SPECIAL ARTICLES.

Motor Cars and Accessories for 1925: The Show at Olympia. By J. MARSHALL, M.I.A.E.—(*Illustrated*)..... 826

Scotland: St. Andrews Institute for Clinical Research 824

Ireland: Royal Academy of Medicine in Ireland.. 825

Infectious Disease in England and Wales 835

THE SERVICES.

Royal Naval Medical Service.—Royal Army Medical Corps.—Royal Air Force.—Indian Medical Service.—Deaths in the Services 830

CORRESPONDENCE.

Is Sanatorium Treatment Economically Sound? (Dr. James Watt)..... 831

Antimony Tartrate in Bilharzia (Dr. F. G. Cawston) 831

Fact and Theory in Radiotherapy (Dr. F. Hernaman-Johnson).... 832

Dental Dressers (Mr. A. T. Pitts)..... 832

Repression of Painful Memories (Dr. P. S. Connellan) 833

Gas-and-Oxygen Anæsthesia in Ill Patients (Dr. Francis E. Shipway)... 833

Fur Dermatitis (Dr. A. Knyvett Gordon) 833

The Toxæmias of Pregnancy (Drs. O. L. V. de Wesselow, J. M. Wyatt) 834

Painful Cramps (Dr. E. W. Dewey) 840

Treatment of Mucous Colitis 840

OBITUARY.

Colonel George Ensign Bushnell, M.D. 834

Sir Charles Cameron, Bart., M.D. 835

Edgar Reid, M.R.C.S. 835

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: Defeat of Government and Dissolution..... 836

House of Commons: Admiralty Medical Department.—Exemption from Vaccination.—Cobb Committee and Lunacy Regulations.—Compensation for Silicosis.—Pensioners' Allowances for Out-patient Treatment..... 836

MEDICAL NEWS.

University of Cambridge.. 836

University of London 836

Royal College of Surgeons of England 837

Women on Hospital Boards at Liverpool 797

Factory and Workshop (Notification of Diseases) Order, 1924 813

The late Dr. W. M. Eaton, of Bulawayo 819

The "Military Surgeon".. 825

Fellowship of Medicine and Post-Graduate Medical Association..... 837

North-East London Post-Graduate College..... 837

American Social Hygiene Conference 837

Guild of St. Luke..... 837

Institute of Hygiene..... 837

Prince of Wales's Hospital 837

Eugenics Education Society 837

Hunterian Society 837

Epsom College Memorial Chapel..... 837

London School of Dermatology 837

St. Andrews Institute for Clinical Research, Fife.. 837

West Riding Association of the Graduates of the University of Edinburgh 838

Dangerous Drugs 838

Fifth International Congress of the History of Medicine 838

Donations and Bequests .. 838

NOTES, COMMENTS, AND ABSTRACTS.

Current Views on Individual Differences of Ability: Prof. Spearman's Lecture 840

"Liston Palings"..... 840

Medical Diary..... 838

Appointments 839

Vacancies..... 839

Births, Marriages, Deaths. 839

CHLOROFORM ANÆSTHESIA. By **A. GOODMAN LEVY**, M.D., M.R.C.P.Lond., Physician to the City of London Hospital for Diseases of the Chest; formerly Anæsthetist to Guy's Hospital. Foreword by ARTHUR R. CUSHNY, M.D., LL.D., F.R.S., Professor of Materia Medica and Pharmacology in the University of Edinburgh. **7s. 6d.** net.; post free 8/3.

"Of intrinsic merit, and can be confidently recommended to all branches of the profession."—GLASGOW MEDICAL JOURNAL.

CANCER: Its Cause, Treatment and Prevention. By **A. T. BRAND**, M.D., C.M., V.D., Physician, Driffield Poor Law Infirmary; late Major R.A.M.C. **8s. 6d.** net, post free 9/3.

"Dr. Brand is a whole-hearted believer in the infection theory of the causation of all varieties of cancer, and he states his opinions with clearness and confidence . . . it is a strong presentment of the case, and the personal experiences of Dr. Brand are set forward in a convincing manner."—LANCET.

JOHN BALE, SONS & DANIELSSON, Ltd., 83-91, Great Titchfield Street, London, W.1.

SCHOOL FOR THE DEAF

Also for the Cure of Speech Defects in Hearing Children.

KINGSFIELD HOUSE, OXHEY, Herts.

Principal: Miss BULLOCK
(Qualified Teacher of the Deaf)
Large house & garden. Outdoor life, games, &c.
Careful Character training. Christian influence.
Phone: Watford One.

STAMMERING, SPEECH DEFECTS.

BEHNKE METHOD. Estab. 1882. CASES, non-resident, treated at 39, Earl's Court Square, S.W.5, and, in residence, in the Summer holidays at Miss Behnke's house on the Chilterns.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*
"Thoroughly physiological principles."—*The Lancet.*
"The method is scientifically correct and perfectly effective."
—*Guy's Hospital Gazette.*

"STAMMERING, CLEFT PALATE, SPEECH, LISPING," 3s. 9d.
of Miss BEHNKE, 39, Earl's Court Square, S.W.5.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W.6.
(Telephone: Willesden 435.)
30 years colleague of late B. BESLEY, Brampton Park, Huntingdon.
Those interested in the subject should write for his book, which will be sent post free.

By EDWIN L. ASH, M.D.

The Problem of Nervous Breakdown. 10/6
Nerves and the Nervous. 5/-
I Am and I Will. 5/- Middle Age, &c. 5/-

Mills & Boon, 49, Rupert Street, London, W.1.

STAMMERING

MOST SUCCESSFULLY TREATED.

RESIDENT AND DAILY PUPILS.
PROSPECTUS AND MEDICAL OPINIONS POST FREE FROM
Mr. A. C. SCHNELLE, [Tel.: Museum 3665.
Estd. 1905] **119, Bedford Court Mansions, London, W.C.1.**

TRUSS MAKERS.

MATTHEWS BROS., 10, New Oxford Street, London, W.C.1.
Established 1840. Telephone: Museum 1017.
PERSONAL ATTENTION GIVEN TO ALL CASES.
DIFFICULT CASES A SPECIALITY.

"GAMGEE TISSUE"

Sole Proprietors and Manufacturers:
ROBINSON & SONS, Limited,
Chesterfield.

DISPENSING BOTTLES

MEDICAL FLATS, VIALS, POISONS, ETC.
Good Quality, Accurate Measure
at
LOWEST REDUCED PRICES
Prompt attention to Country Orders
OLDEST BOTTLE HOUSE IN THE TRADE
ESTABLISHED 100 YEARS
I. ISAACS & CO.
NORTH LONDON GLASS BOTTLE COMPANY
London Office: 106, MIDLAND ROAD, N.W.1.
Warehouse and Stores: London Midland & Scottish Railway Goods Depot, St. Pancras.
Telephone: Museum 4209. *Telegrams:* Isaglasbot, Kincross, London.

"ANGIOLYMPHE" (REGISTERED.)

FOR

TUBERCULOSIS

COPY OF LETTER FROM PHYSICIAN IN QUEBEC.

"Gentlemen, July 3rd, 1924.

Enclosed please find Bank money order, for which please let me have further supply of Dr. Rous' 'Angiolymphe' by return mail. I have not as yet used up the entire series of ampules I purchased last month, but so far there has been shown considerable clinical amelioration in a very advanced case of Pulmonary Tbc.

I will let you have further details in the near future. Yours truly,

(*Signed*) _____
Physician and Surgeon."

In boxes of 6×2 c.c. ampoules at 12/- per box nett.
SPECIAL TERMS TO HOSPITALS.

Literature from—
POWELL, GIBB & TAYLOR, Ltd.
44, BOW LANE, E.C.4. Central 1606.

YOU CAN DRESS WELL—AND AT A MODERATE COST, TOO.

WILLIAM EVANS

Late of Regent Street.
14, CLIFFORD STREET, BOND ST., LONDON, W.1.
(Corner of Bond St. & Clifford St.) *'Phone:* Gerrard 7334.

Bond Street's finest productions are now within the reach of even those with the most limited income.

Material of first-rate quality and a cut that will satisfy the most exacting taste, combined with the skill of an artist in making

Let your next Suit or Overcoat be by 'William Evans' and notice the difference in appearance and above all—in price.

Mr. Evans has had probably more experience in cutting and making clothes for Doctors at Home and Abroad than any cutter in the West End.

Warm Overcoats for visiting and travelling	**from**	**£3 18 6**
All Wool Lounge Suits	**from**	**£5 5 0**
Dinner Jacket Suit	**from**	**£8 8 0**
All Wool Black Jacket and Vest and Cashmere Trousers	**from**	**£6 6 0**
Ladies' Dept.		
Coat and Skirt	**from**	**£8 8 0**

No matter where you live we can give you a perfect fit. Patterns sent to those unable to call, with instructions for easy self-measurement. When sending for patterns please state the kind required.

DEAF DOCTORS

USE

"ARDENTE ACOUSTIQUE"

Nothing greater could be said in favour of this remarkable aid.
It does its work and does it well; that is why Medical men have been quick to recognise its merits and to lend it their whole-hearted support.

Mr. R. H. Dent will be pleased to give personal demonstrations or send particulars to any Member of the Faculty not already acquainted with "Ardente-Acoustique."

95, WIGMORE STREET, London, W.1.
(back of Selfridges). *Telephone:* MAYFAIR 1380.
51, King St., Manchester. 102–112, Union St., Glasgow.
9, Duke St., Cardiff.

COMMENDED BY THE LANCET.

The Evolution OF NEUROLOGY AND ITS BEARING ON MEDICAL EDUCATION.

A Presidential Address to the Neurological Section of the Royal Society of Medicine, delivered on Oct. 9th, 1924.

BY E. FARQUHAR BUZZARD, M.D. OXF., F.R.C.P. LOND.,
PHYSICIAN TO ST. THOMAS'S HOSPITAL.

THE approach to a presidential chair, which, if it could speak, would claim among its past occupants such men as Hughlings Jackson, David Ferrier, Victor Horsley, W. H. Gaskell, Sherrington, and Head, to name but a few of the most illustrious, is necessarily attended by a sense of inferiority difficult to reconcile with the pride of being chosen to fill such a position. The sense of inferiority is in no way mitigated by finding myself following directly in the footsteps of Dr. James Collier, whose successful term of office has just expired, and whom I always gratefully regard as my first neurological guide and teacher. It was my good fortune to find him in residence at Queen-square when I went there as a clinical clerk five-and-twenty years ago. In those days his boundless energy was only equalled by his unremitting patience, his willingness to impart knowledge, and his power of imbuing others with some of his own enthusiasm. We all know how tenaciously these characteristics have clung to him throughout the intervening years.

But the initiate at Queen-square of that time had more than enough to stimulate his enthusiasm. Every afternoon there were rounds with Hughlings Jackson, Bastian, Horsley, Gowers, or Ferrier. Mornings were spent note-taking in the wards and spare hours, often spreading far into the night, were devoted to work in the pathological laboratory under the safe guidance of Batten. It is no matter for surprise that we found the climate of Bloomsbury exhilarating and came to regard the hospital as a neurological Olympus. The gods have mostly left us, but their shrine remains as a monument to their labours and an inspiration to all pilgrims who pass that way.

In choosing my subject I have been largely influenced by recollections of the delights and difficulties of those days and by the desire, long entertained, to compare them with the conditions now governing the work and outlook of those on the threshold of our profession. Although comparisons are reputed to be odious, they may not be always uninstructive, and the present can never afford to neglect the lessons of the past. It is necessary, therefore, to my purpose to recall not only the actual work on which neurologists were engaged at the end of the last century, but the immediate aims and objects of their task. It will be necessary, too, to contrast these with our work and objectives of to-day and finally to consider how this comparison affects the problem of medical education.

For reasons which it would be superfluous to recite, my argument will be based on the development of neurology, but, if sound, it must apply with equal force to that of the whole of internal medicine. I hold that neurology is the eldest of the medical ologies, not perhaps by right of primogeniture, but because of its exceptional precocity. This precocity arises from the fact that even in infancy its anatomical elements were more readily cemented together by physiology than was the case with any other branch of medicine with the result that, contrary to all accepted ideas, its problems have become progressively more straightforward and easier of solution than those of its brethren. In other words, the science of neurology is approaching exactitude in regard to the relationship of symptoms and physical signs to disorders of function and changes in structure.

AIMS AND OBJECTS OF NINETEENTH CENTURY NEUROLOGY.

During the last quarter of the nineteenth century the edifice of neurology was in process of construction. Those engaged on the task were busy finding the necessary stones, labelling them and placing them, perhaps haphazard, in some kind of position. The foundations were chiefly composed of anatomical facts interspersed with meagre physiological details by way of mortar. The superstructure gradually grew in height as disease after disease was named and laid in place, but in the absence of any considered, draughted plan the architecture was faulty and lacking in proportion or design. A scientific edifice never attains completion, and this one has proved no exception to the rule. It has constantly called for renovation and repairs, in the course of which there has been much demolition and reconstruction. Here and there an arch has withstood the test of time, but many have rotted under exposure or sunk beneath the weight of experience. Nevertheless, we can be proud of our edifice, incomplete as it is; its foundations are of the right material, and every year sees them widened and solidified by additions to our knowledge of nervous anatomy and physiology.

In the days to which I have referred neurologists were, for the most part, collectors. Their interest was largely absorbed in finding and cataloguing undiscovered diseases, much as an entomologist or stamp collector seeks and classifies new specimens. The records of the Neurological Society testify to this enthusiasm, and probably the evolution of neuropathology has only followed that of all other sciences. The zeal for collecting precedes and breeds the spirit of inquiry.

THE ALTERED OUTLOOK OF TO-DAY.

And thus have time and increasing knowledge altered our outlook. The completed article in the shape of disease, even if it be a new specimen, inspires comparatively little interest in the minds of many of us, unless it throws light into the dark corners of pathology. Our collection lies neglected on the shelf and, if something is added to it, the addition is made with little pride. We have come to realise how small is our knowledge of health and healthy living function, and how imperative it is to recognise the smallest deviation from normal structure and function if we are to understand the natural history of disease, and to solve the problem of its prevention or frustration. This change is well illustrated in the proceedings of our section, as it is in those of other sections, and contributes in no small degree to the anxieties of our secretaries. Material for meetings and discussions is scarce. We are digging among roots deep in the ground, not merely culling the blossoms on the surface. The work is laborious, the soil requires careful sifting, and the buried treasure needs expert handling and critical inspection before it is ready to be appraised.

The history of ill-health now means much more to us than the unhealthy patient, and when unravelled is more helpful to us, and indirectly to the unfortunate sufferer, than prolonged contemplation of the ravages produced by disease. The latter may be easily detected by the eye of the trained observer; for the former we have to depend not only on our own skill in cross-examination but on the veracity, memory, and intelligence of others. In no branch of medicine has this truth been more strikingly displayed than in that of psychopathology, although it applies with equal force to every form of organic disorder. Unfortunately, perhaps as the result of faulty training or perhaps for economic reasons, its vital significance has not yet been grasped by the bulk of our profession.

To apply a sporting analogy to our past and present conceptions of morbid processes and our ways of dealing with them, we might compare the earlier one with golf and the later with cricket. The golf ball is

an article provided, painted, and marked for us, and placed stationary in front of our eyes to hit. A physician may miss it; a surgeon may slice it; only a quack may drive it out of bounds or into a hazard without penalty. The cricket ball, hidden at its origin, comes from a distance and is deceptive in its flight. Its swerve, length, and break require watching, and the danger of complications and sequelæ in the shape of fieldsmen must be avoided if the wicket is to remain intact. Prolonged experience of the bowler's wiles may enable the batsman to play the ball with increasing confidence, but the danger of being bowled, stumped, or caught out can never be very far away. Surely we need more cricketers and fewer golfers in our ranks!

But the aspect of medicine has altered in other ways than that of perspective. Hard lines are disappearing, values are being rectified, and better composition is leading to improved grouping of its elements. In its early days a specialised off-shoot, like neurology, is apt to be isolated from its fellows; only as it approaches maturity is its complete dependence on the main trunk and close relationship with all other branches clearly determined. Thirty years ago neurologists were engrossed with clinical pictures and morbid anatomical specimens carefully preserved and mounted. A list of symptoms, a bedside photograph, and an elaborate series of microscopical slides served to illustrate and schedule a disease. Now it is to biochemistry, to bacteriology, to endocrinology, or to psychology that we look for light and understanding. Scarcely a day passes without the desire for a more intimate knowledge of the anatomy and physiology not only of the nervous system, but of every organ forming part of the human frame. Our thoughts are centred on the problems of pathogenesis, and the field of our inquiry extends far beyond the limits of our speciality.

It is not my intention for one moment to depreciate the work which has been done in the past or even to cavil with the inevitable course of events. In no other way could our knowledge have accumulated as it has done in the last 50 years, and no one could have foretold the course and direction of the paths and by-paths which are now to be traced on the map of medicine. But the time has come when this map requires careful reconsideration from the point of view of the medical student and medical education. It has become a maze rather than a map, a maze from which innumerable superfluous names and countless blind alleys must be eliminated in order that the main roads may stand out clearly for the student of medicine to see and follow.

NECESSARY REVISION OF THE MEDICAL CURRICULUM.

As an examiner I have been appalled at the amount of material which the examinee is expected to ingest and assimilate, and as a teacher I have become more and more convinced that our whole medical curriculum requires revision. Assuming that there has been, during the past 25 years, a great change and advance in our conception of disease, such as I have attempted to indicate, can it be said that our system of education has been modified to meet the situation? To some extent it has, but chiefly by way of patchwork and excrescences. Insistence on the importance of a particular speciality has led to a set period of time being devoted to its study, and the multiplication of these courses leaves the student no time to view medicine stereographically or to realise that principles rather than isolated facts are what he requires for his professional equipment.

In my own time I was taught physiology and anatomy, passed an examination in these subjects, forgot practically all I had learned, and started on new subjects called medicine and surgery. Three years' work, during which I learned much about disease and little about health, enabled me to pass another examination and qualify. A year later my steps were turned to Queen-square and my thoughts to neurology. Although I knew enough about nervous diseases to qualify, I very soon found that I had to go back to the beginning of things, re-learn the anatomy and physiology of the nervous system, and so gain, what was to me, an entirely new conception of the relationship between health and disease. As time passed one realised that this conception was one which was applicable not only to neurology, but to other branches of medicine, and that expert knowledge of the latter required the same close acquaintance with their particular aspects of anatomy and physiology.

Does the student of the present day, coming fresh to hospital wards or at the time of qualification, go through an experience which is very different? I think not. It is true that he is better trained in physiology and that his knowledge of this subject is more applicable to human life than the amphibian physiology on which I was brought up. But it is true also that the 25 intervening years have added enormously to the burden which his memory is called upon to bear. Has the divorce between physiology and anatomy, on the one hand, and medicine and surgery on the other been really annulled? I doubt it. We find the student who has recently passed a stiff examination in the former subjects confronted, for example, with a paralysed patient. He may be able to describe the bony ridges where certain muscles have their origin and insertion, even tentatively to suggest their nerve-supply, but of their function and the methods of demonstrating or investigating that function he is more often than not entirely ignorant. He knows nothing of agonists or antagonists, and muscular synergism, which he brings into play every hour of his life, has no meaning for him. He cannot describe the mechanism by which he adopts or maintains the erect position. He may be able to write a respectable essay on reflex action, but he is quite incapable of eliciting the normal reflexes from a healthy human subject.

He may recite with accuracy the muscles supplied by the oculo-motor nerve, but accommodation, convergence, and pupillary reactions are terms which convey but little anatomical or physiological significance to his mind. He has no familiarity with normal heart sounds, nor has he learned the difference between voluntary and involuntary respiration. He has read descriptions of the retina, but has never seen the fundus of an eye. He has used his voice since infancy, but has never seen a larynx in action. And yet all these gaps in his knowledge, and many others besides, do not belong to medicine or surgery, but to human anatomy and physiology.

In other words, after two or three years of studying anatomy and physiology he comes to us without any intimate knowledge of normal standards as applied to the living human being and without, therefore, the necessary data which would enable him to detect variations from the normal. And yet in the next two or three years he has so much to fill his time that there is little or no opportunity to make up this deficiency, with the result that he qualifies on such acquaintance with mature disease as is required of him and remains more or less ignorant of health and uncertain of detecting early disorders of function.

THE GOAL OF MEDICAL EDUCATION.

It may not be out of place to attempt a definition of the goal at which we all aim, or perhaps at which we ought to aim in medical education. What is the equipment which we would like to see possessed by every newly-qualified practitioner of medicine? In the first place he should be familiar with health as represented by normal structure and function, recognising, of course, that the latter are capable of considerable variations in respect to particular individuals or particular organs. In the second place he should have at his fingers' ends, and be able to carry out, all the ordinary tests employed in medicine for detecting variations from normal function. He should, for instance, be able to detect a flaw in the function of the pyramidal system, an inadequacy of renal function, or a deficiency on the part of the thyroid gland with some degree of alacrity and confidence.

In the third place he should be thoroughly acquainted with morbid processes, whether of degenerative, vascular, inflammatory, or neoplastic origin, and capable of recognising the alterations in structure which they produce. Fourthly, and this is perhaps the most important part of his equipment, he must be intimate with the natural history of disease as illustrated by its clinical course. Lastly, he should be well grounded in the established *principles* of treatment, realising, as we must, that therapeutic measures are very unstable and dependent largely on the vogue of the moment.

For many years the student, in order to qualify, has been required to display a superficial knowledge of a number of named diseases, hastily acquired for the purpose of his examination. Examples of many he may never have met with, and his second-hand knowledge of them will have evaporated long before they cross his path. I doubt whether any of you would disagree with me if I assert that under our present system very few newly-qualified men are adequately equipped for the practice of medicine. Fortunately, perhaps, only a minority assume really responsible positions without passing through some kind of apprenticeship. If this is the case, I submit that a system which has more regard for educating students in the essential principles of the science of medicine, and pays less attention to their knowledge of particular diseases, would provide the qualified practitioner with sounder foundations on which to build from experience.

When I spoke of revising the medical curriculum I was referring to that period of time, five or six years, now occupied chiefly by the study of anatomy, physiology, organic chemistry, medicine, and surgery. The fundamental change which appears to me necessary is to remove the line of demarcation at present separating the three former subjects from the two latter. The aim of education, put very shortly, is to stimulate the natural functions of our higher cerebral levels, especially that function which enables us to recognise similarity and difference, to distinguish soft from hard, sweet from sour, solid from fluid, square from round, smooth from rough, near from far, head from tail, good from bad, white from black, truth from falsehood, and normal from abnormal. How is it possible to appreciate the soft, the square, the white, the truth, or the normal if we are not brought into contact with the hard, the round, the black, the false, or the abnormal? It is contrary to all principles of education as laid down by nature or experience.

From the moment that the student enters upon the study of anatomy or physiology he should feel that he has passed the threshold of medicine and surgery, that he has begun his life's work, the study of the human mind and body with all the vagaries and ills to which they are heirs. From the beginning he should be faced with living as well as dead subjects, and while his primary objective should be to learn all that is known about normal structure and function, his task should be made easier by opportunities for comparing the normal with the abnormal.

To take one example from the field of medicine. The study of the musculature should embrace not only the origin and insertion of muscles, their relationship to other structures and their nerve supply, but their living function, the daily or hourly uses to which they are put, and the methods by which their action or inaction can be demonstrated. The student should have the chance of observing at the same time—that is to say, within a few hours or a few days—the limb he has dissected, a healthy living limb in action, and limbs which are paralysed as the result of lower and upper motor neurone lesions. In this way he would rapidly gain an understanding of muscular action, the difference between voluntary and involuntary movement, the difference between the loss of muscle and the loss of movement, and of many simple reflex actions. For the moment the nature of the disease from which the paralysed patient suffers would not concern him. Having seen the normal and the abnormal side by side the features of each would remain fixed in his mind. He would still need his text-book of anatomy by his side, but he would stimulate his interest and solidify his memory by reading such books as Beevor's "Croonian Lectures on Muscular Movements" or Mackenzie's "Monograph on the Action of Muscles." It should not be difficult to arrange that at the same time he should be taught some neuro-muscular physiology, and become acquainted with the microscopical alterations of structure associated with Wallerian degeneration and muscular atrophy.

What applies to the musculature applies equally well to other tissues or organs. The teacher of anatomy should see that no student leaves him unfamiliar with the use of the ophthalmoscope or with the appearance of the fundus oculi. The teacher of physiology should be equally insistent on a clear understanding of the significance of diplopia and the principles underlying errors of refraction, their detection and analysis. The technique of test-meals and blood examination belong to the same department and offer similar opportunities to the student for acquiring the ability to differentiate between what is healthy and what is unhealthy.

But the expansion of anatomy and physiology does not end here. Radiology is a modern science which should be utilised early in the medical curriculum for the purpose of teaching. Long before the student comes to the wards he should be able to recognise a normal pituitary fossa from its bony outline, or a normal heart from the size and shape of the mobile shadow it casts on a screen. A series of barium meals demonstrating the normal and abnormal activities of the gastro-intestinal tract in the human subject would stimulate a live interest such as is unobtainable from the contemplation of dead abdominal viscera in the dissecting room. In short, no teacher can afford to neglect any method by which structure and function can be viewed from additional standpoints. The more sensory associations a subject can arouse in the human mind the clearer are its features and the more true is its perspective.

Mention of the human mind reminds us that the study of psychology should also begin during the physiological era of the medical curriculum. The greatest difficulties with which the practitioner is going to be confronted will be of psychological origin, and it would be well that his attention should be directed to this aspect of his work at the earliest opportunity. The study of the anatomy and physiology of the nervous system would lose none of its interest if it were associated with the digestion of a primer such as MacDougall's "Physiological Psychology."

It is not within my province to elaborate in greater detail than I have done the methods by which the student might be better educated during the first half of the five or six years of his curriculum nor to draw up any kind of time-table covering that period. I would submit, however, that when the day arrives for him to enter the wards of a hospital and to become an integral part of a medical unit or firm, he would be better equipped for the work which still awaits him before he has to face his qualifying ordeal.

Moreover, the training he has undergone should help to solve the great problem with which we, as teachers, are faced. What are we expected, or what do we hope, to teach students in the meagre period of six months allotted to the medical wards? At present we are obliged to spend much time in demonstrating what is normal in the structure and function of the living subject, in teaching how normal structure and function may be made manifest by methods as far apart as that for the preparation of a blood film and that for the elicitation of a knee-jerk. Instruments such as the stethoscope, laryngoscope, ophthalmoscope, and sphygmomanometer are placed in untrained hands and, with one exception, hardly ever reach terms of familiarity with their owners. The power of observation and the manual sensibility so necessary to the clinician have scarcely been brought into being, much less developed, so that

even gross abnormalities in bodily conformation escape the student's eye or hand.

THE STUDENT'S WORK IN HIS FINAL MONTHS.

How little time is left over for those subjects which properly belong to these six months, which demand every moment the student can spare to them, and proficiency in which he can only acquire under the conditions of intimacy with patients appertaining to work in the wards. And what are the proper uses to which the six months should be devoted? In the first place, the student must utilise his daily opportunities for increasing his acquaintance with what is normal and abnormal in structure and function by bedside observation and laboratory research. If he has previously acquired some degree of familiarity with this aspect of his work he will be in a position to make the most of these opportunities. In the second place, he must now enter upon the study of the natural history of disease, a knowledge of which can only be acquired by the most assiduous attention to stories of ill-health, by probing their accuracy, and by attempts to give them their true interpretation. There is no part of medical work the significance of which needs more insistence on than that of history-taking. It requires endless time and patience, and the fact that it has hitherto been a task allotted to a period already overcrowded has meant that only a small proportion of students enter the profession adequately versed in the art, or appreciative of its paramount importance. That students are brought into contact with so much advanced disease in hospital wards and see so little of its early manifestations has often been urged, not without some justification, as a flaw in our system. But the significance of early manifestation would be lost without a first-hand knowledge of later developments, and the features of early manifestations can nearly always be elicited by careful history-taking.

There are two other lessons to be taught and learned during the period spent in the wards. It is the student's chance of acquiring the art of handling patients, using the term in its psychological as well as its physical sense, an art which must be taught by example rather than by precept, and one which is mastered by some men and women much more readily than by others. Finally, principles of treatment require exposition together with such detailed therapy in relation to the more common ailments as can be taught in the time at our disposal. An intelligent grasp of therapeutical principles is far more valuable than a profound knowledge of pharmacology. If the physician achieves success in regard to these four aspects of his teaching it is as much as he can expect, and success would come his way more frequently and more easily if the student were prepared for his lessons by previous training on the lines I have indicated.

As with internal medicine so it would be with the special departments. Already familiar with the methods by which the eye, the ear, and the throat are brought under inspection and able to detect variations from the normal the student would be ready to study the natural history of morbid processes as well as the physical signs and symptoms to which they give rise.

In the rough sketch which I have drawn for you of what I, and I believe many others, would regard as a forward step in medical education, there is much outline and little detail. The proposed alterations in teaching would necessitate some change in the point of view of examiners. Those conducting final examinations would need to satisfy themselves that candidates were adequately educated rather than replete with facts, and that their knowledge of medicine and surgery was built on foundations of physiology and anatomy sufficiently strong to support the additions which post-graduate experience would add to it year by year. There is no doubt that this describes the attitude of many examiners of to-day, but the examinee is still in the unfortunate position of having to prepare for questions on rare diseases concerning which his knowledge is only of text-book origin. His burden is heavy enough without this additional charge.

EVOLUTION OF NEUROLOGY IN RELATION TO MEDICAL EDUCATION.

It has been my endeavour to show that the proposed changes in medical education are the natural outcome of the lesson taught by the evolution of neurology, illustrated by a comparison of the work on which neurologists of 25 years ago were engaged with that of the present generation. The research of to-day depends for its success, in most instances, on an increasing intimacy with the anatomy and physiology of the nervous system and demands, consequently, a high standard of proficiency in these subjects from any member of the profession who chooses this branch of medicine as his speciality. Other branches are rapidly following the lead, with the result that a form of education better suited to the needs of the day, and more in consonance with our modern conception of pathology will soon be a matter of general demand.

The plea which I have made here is not a new one. It has been the subject of appeals more eloquent than mine and of much consideration in the minds of many who have never voiced their opinion. We are slow to adopt radical changes in our methods, but this change is rapidly becoming not only a necessity but inevitable. Inevitable because the progress of medicine demands from its disciples a higher standard of education, and better weapons with which to face ignorance, superstition, and prejudice as well as disease. It is often said, perhaps with a suspicion of apology, that medicine is an art, not a science. Is it for that reason that in the past we have been almost encouraged to forsake the sciences of anatomy and physiology when we begin to practise the arts of medicine and surgery? There is no need for such estrangement since all arts are based on science and lose neither their beauty nor their interest when science guides their practice.

The day is surely coming when we shall be proud to call ourselves scientists, but it will not dawn until we see physiology and anatomy walking hand in hand with medicine and surgery forming an ever-growing intimacy such as we can discern in the evolution of neurology.

SOME OBSERVATIONS ON THE "MODERN THEORY" OF RENAL SECRETION,

WITH AN ACCOUNT OF A CASE OF RENAL GLYCOSURIA.

BY A. P. THOMSON, *M.C.*, M.D. BIRM., M.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM; PHYSICIAN TO OUT-PATIENTS, THE CHILDREN'S HOSPITAL, BIRMINGHAM.

THE object of this paper is to show that certain observations that I have made do not entirely support the modern theory of renal secretion. This theory, as propounded by Cushny, presumes that when blood passes through the capillaries of the renal glomeruli an exudate consisting of water and all the crystalloid bodies of the plasma, in their respective proportions, is passed out into Bowman's capsule by a process of physical filtration, which is modified normally by such factors as blood pressure and flow, the osmotic tension of the colloids of the blood, and the permeability of the membrane covering the capillary tuft. To quote Cushny's words, "the glomerular filtrate is thus practically deproteinised plasma." As this glomerular filtrate is passed down the kidney tubule certain bodies—the threshold bodies—are re-absorbed by the tubule cells in definite proportions determined by their normal titres in the plasma. "No-threshold" bodies, such as urea, are rejected and can only escape by the

ureter. The function of the kidney may be shortly defined as "the filtration of the non-colloid constituents through the capsule, and the absorption of Locke's fluid through the tubule cells."

According to this theory, therefore, in the normal person sugar as a crystalloid threshold body passes freely out into the glomerular filtrate in the proportion in which it exists in the plasma, and is re-absorbed by the tubule cells at a certain fixed and definite rate, no matter what the needs of the organism at the moment. The rate of this re-absorption, though normally fixed at the "optimum," may presumably be modified by drugs which affect the tubule cells, by the presence of an unabsorbable substance in the filtrate which exercises an osmotic tension contrary to the current of tubule cell activity and, finally, by the time during which the filtrate remains in contact with the tubule cells—that is, by the rate at which it passes along the tubules. Cushny suggests that during diuresis the urine will approximate more closely to deproteinised plasma, because the tubule cells will not have time to elaborate their secretion from the rush of glomerular filtrate.

The Theory Tested by Clinical Experiments.

It occurred to me that it might be possible in a measure to test this hypothesis if I could compare the rate of excretion of sugar in the urine with the rate of excretion of water in a fasting diabetic with a constant level of hyperglycæmia. In such a case, if the theory were true, it seemed reasonable to expect a definite correlation between these two factors, for the glomerular filtrate would contain the same constant percentage of sugar as the blood plasma, the amount of re-absorption by the tubule cells would vary mainly with the rate of passage of the filtrate, and the other factors affecting re-absorption (such as any substance increasing osmotic tension in the filtrate, or some affection of the tubule cells) would either remain constant or vary to a very slight degree in a fasting patient in bed. A suitable case was not easy to find, as the hyperglycæmia of most diabetics declines during starvation.

In August, 1921, E. S., a girl aged 10, was sent to me with severe diabetes. I took her into the private ward of the Children's Hospital. After the amount of fat in her diet had been gradually reduced she was starved. The period of starvation began at 6 in the evening; the blood-sugar was then 0·25 per cent. The specimen of urine passed when she woke the next morning was sugar-free; the next specimen, passed at 10 A.M., contained much sugar. The blood-sugar was still above 0·2 per cent. The starvation continued, and the same thing happened the next day; the early morning specimen was sugar-free—all other specimens contained sugar. The hyperglycæmia was untouched by three days' starvation and the prognosis was practically hopeless (as a matter of fact, the child died a month later). However, I resolved to make one more attempt to control the diabetes and to investigate the curious intermittent glycosuria.

TABLE I.—*Twelve Consecutive Specimens of Urine from 10.30 a.m., August 29th, 1921.*

Total urine (oz.).	Total sugar (grains).	Intervals (hours).	Water excretion (ozs. per hour).	Sugar excretion (grains per hour).
10	44·0	4½	2·2	9·8
12	47·0	4	3·0	11·7
8½	35·0	3	2·9	11·6
22½	59·4	12½	1·8	4·7
18½	47·0	5	2·5	9·4
7½	1·1	5½	1·4	0·2
5	0	4	1·25	0
12	0	9½	1·3	0
12	18·5	5½	2·2	3·4
12	10·5	5	2·4	2·1
8	6·3	4	2·0	1·6
17	0	8½	2·0	0

For a period of three days, during which food was withheld for 48 consecutive hours, each specimen of urine was collected separately, measured, and its content of sugar estimated. The times at which the specimens were passed were carefully noted. It was thus possible to obtain an estimate of the average rate of excretion of water and sugar per hour. The actual figures were as given in Table I.

The blood-sugar was estimated twice; at noon on August 30th it was 0·15 per cent., at 5 o'clock on the following morning it was 0·18 per cent. Shortly after the second estimation a specimen of urine was passed which was sugar-free. It seems probable that the blood-sugar remained fairly constant during the period of starvation. It will be seen that the rate of excretion of sugar corresponds almost exactly with the rate of excretion of water, for the first 50 hours.

It seems to me that this may be reconciled with Cushny's theory. When a flood of water passed along the tubules during the day the cells, keeping steadfastly to their fixed rate of re-absorption, allowed some of the sugar to escape, the amount so escaping being directly proportional to the rate of flow; during the night, although the percentage of sugar in the glomerular filtrate was the same or even higher, the cells, having more time to act in the presence of a less rapid flow, re-absorbed all the glucose, and so the early morning specimen was clear.

I next investigated the correlation of the curves of the rate of excretion of sugar and the rate of excretion of water in several diabetics during their period of starvation under treatment. These curves were frequently parallel during the earlier part of the starvation period, when presumably the blood-sugar had not fallen very much, if at all, from its usual level. Cushny mentions this fact in support of his theory. It seemed likely that glycosuria disappeared after starvation as the proportion of sugar in the plasma (and glomerular filtrate) fell to such a level that, at the normal rate of travel of the filtrate down the tubule, the cells were able to re-absorb all the sugar in it. If this were really so it should be possible to reproduce glycosuria in a starving diabetic who had just become sugar-free by inducing a sudden diuresis with an associated increase of rate of flow of the filtrate down the tubule. I attempted this on many occasions, but never succeeded in reproducing any glycosuria recognisable by the ordinary clinical tests. So many factors need to be considered in this relation besides the instability of the degree of glycæmia towards the end of the starvation period, that I was unable to consider this evidence as directly contrary to the Cushny hypothesis; it was, however, distinctly surprising.

It was at this stage that the kindness of my colleague, Dr. L. G. Parsons, enabled me to investigate fully a case of renal glycosuria, of which the following is a short account:—

In December, 1921, towards the end of a period of three months' probation as a nurse, Miss H., an apparently healthy girl of 23, was found to be passing large quantities of sugar in the urine. Nothing abnormal could be detected on examination; she had no symptoms of any kind, no thirst, no polyuria, no wasting, and menstruation was normal. So far as the patient could remember she had had no illness of importance, and had always been regarded as a perfectly healthy girl. There was no family history of diabetes, but her paternal uncle had been refused life insurance some years previously on account of glycosuria. He has remained in good health since without restriction of his diet. Subsequent examination of the urine of the patient's father, mother, and brother showed nothing abnormal.

Miss H. was admitted to a side-ward of the General Hospital under my care in December, 1921. Dr. W. T. Hillier, clinical pathologist to the hospital, examined the urine and reported as follows: "It (1) reduces Fehling's solution; (2) is fermented by yeast; (3) gives osazone crystals which cannot be distinguished from those of dextrose; and (4) gives a colour reaction with orcein indistinguishable spectroscopically from that given by dextrose." On ordinary diet the separate specimens of urine all contained sugar which varied in amount from 2·5 per cent. to 5·5 per cent.; the majority contained about 4 per cent. The total urine passed in the day was usually about 35 oz. Di-acetic acid was never detected. The "starvation" level of the sugar in the blood was 0·06 per cent., and the curve obtained after ingestion of 50 g. of glucose by the mouth was normal. The patient was allowed to return to duty and continue her career.

In May, 1923, 18 months after the first tolerance test, blood-sugar estimations were again made after 100 g. of glucose by the mouth, with the following result: Starvation level, 0·06 per cent.; half an hour after glucose, 0·165 per cent.; one hour after glucose, 0·15 per cent.; two hours after glucose, 0·08 per cent. These values are within the limits of normal, but slightly higher than in December, 1921;

the dose of glucose was twice as large on this occasion, and I do not think there is any evidence of loss of tolerance, for I do not agree with MacLean that 50 g. of glucose by the mouth will always produce a maximal response in the blood-sugar of a normal person. Apart from occasional colds, the patient has remained well for nearly three years, and has carried out her duties satisfactorily. The total excretion of glucose remains about the same; during the tolerance test of May, 1923, the specimen passed two hours after taking the glucose contained 10 per cent. of sugar.

TABLE II. (*Miss H.*)—*Ordinary Diet.*

Total urine (c.cm.).	Total sugar (grammes).	Intervals (hours).	Water excretion (c.cm. per hour).	Sugar excretion (grammes per hour).
200	8·6	8·0	25	1·08
140	5·74	2·0	70	2·87
144	7·5	4·5	32	1·66
180	4·5	11·5	16	0·39
195	8·0	5·8	33	1·33
115	4·02	4·66	31	1·09
148	7·4	3·66	40	2·0
110	6·05	10·83	10	0·55
160	5·92	6·5	25	0·9
170	6·29	3·5	48	1·8

50 grammes of glucose given in place of breakfast after the fourth specimen.

TABLE III.—*Starvation.*

190	7·8	11·0	17·3	0·71
250	6·0	6·0	41·6	1·0
120	2·88	3·16	37·9	0·91
85	1·87	5·33	16·0	0·35
225	11·9	9·0	25·0	1·32

In December, 1921, for three days, while she was on ordinary diet, every specimen of urine passed was collected separately and measured and estimated in the same way as in the case of E. S., the diabetic child. (Table II.) A comparison of the rate of water and sugar excretion showed a correlation which was very close but not quite exact. Having regard, however, to the temporary disturbances of the blood-sugar level which occurred after the glucose and other meals, if at no other times, the correspondence is remarkable. During a period of 36 hours' starvation the glycosuria was unaffected and a similar relation of the rates of water and sugar excretion was noticed. Curiously enough, it was not as close as that shown during the days on ordinary diet. She was in bed throughout the whole period. (Table III.)

In February, 1922, the patient was readmitted for further investigation. I proposed to starve her for three days. On the second day I intended to limit the fluid intake to sips of water by the mouth, and on the third day to give her large quantities to drink in order to compare the rates of water and sugar excretion in the different conditions. Unfortunately, on the second morning of the investigation she became faint while getting out of bed, and during the day, as the result presumably of the starvation and the limitation of fluid intake, she became acidosed and it did not seem justifiable to continue the experiment. Diuresis was therefore induced towards the end of the second day and lasted only for a few hours. Estimations of the sugar, urea, and total chloride were made in each specimen of urine passed; the quantities were carefully measured and the times accurately kept. (Table IV.) The estimations of the blood-sugar at noon of the two days of investigation showed the same result, 0·08 per cent. It seems fair to assume that it remained constant, or nearly so, throughout the period. The rates of sugar and water excretion on the chart show fairly good correspondence until the forty-eighth hour. The chloride excretion is less accurately correlated, and that of urea tends to dissociation.

When diuresis was fully established the quantity of sugar excreted in the urine fell very considerably. That the percentage of glycosuria should fall with diuresis was to be expected; that the total excretion should fall was surprising, and I am quite unable to reconcile this result with the Cushny hypothesis. Were the "modern theory" wholly true the result of diuresis would have been a smaller degree of elaboration by the tubules and consequently a greater total loss of sugar.

It may, perhaps, be suggested that the onset of acidosis vitiates the findings of this investigation, but I do not think so, for acidosis was well established at the twenty-fifth hour, and the curves of water and sugar excretion corresponded well with each other and with the modern theory until the forty-eighth hour—that is, until diuresis occurred. Again, it may be contended that the kidneys were pathological, and that it is not fair to apply the results of an investigation in pathology to what is essentially a problem in physiology. It seems to me, however, that in this patient the modern theory must presume either that the kidney tubules were unable to re-absorb sugar from the glomerular filtrate to the normal extent, or that the glomerular capsule during filtration at the normal rate exercised a selective function in the excessive excretion of glucose from the plasma. The latter suggestion is in itself improbable, and would be abhorrent to the upholders of the modern theory who deny any selective activity to the more highly specialised tubule cells. If the former suggestion be accepted I am at loss to explain why the tubule cells should so readily recover their power of re-absorption of sugar in the difficult circumstances of diuresis, and should lose it again when the glomerular filtrate passed slowly before them.

On March 14th, 1922, I approached the problem in another way. Over a period of five hours of induced diuresis hourly estimations of the hæmoglobin, sugar percentage, and total chloride percentage of the blood were made. At the same time hourly (in one instance half-hourly owing to the intensity of the diuresis) specimens of the urine were collected and measured, and estimations of the urea, sugar, and total chloride were made, with the results shown in Table V.

TABLE IV.

Date.	Time.	Interval (hours).	Urine (c.cm.).	Water excreted (c.cm. per hour).	Sugar (per cent.).	Total sugar.	Sugar excreted (grammes per hour).	Urea (per cent.).	Total urea.	Urea excreted (grammes per hour).	Chlorides (per cent.).	Total chlorides.	Chlorides excreted (grammes per hour).	Di-acetic acid.
26/2	2.0	—	285	—	1·76	—	—	1·35	—	—	0·65	—	—	0
	5.20	3·33	228	68·4	1·63	3·72	1·12	1·05	2·39	0·72	—	—	—	—
	9.5	3·75	142	37·9	2·07	2·94	0·78	1·5	2·13	0·57	0·61	0·86	0·23	0
27/2	7.0	9·9	285	28·8	2·80	7·98	0·80	3·15	8·98	0·89	0·75	2·14	0·22	trace.
	2.0	7·0	513	73·3	2·40	12·3	1·76	2·0	10·26	1·47	0·89	4·56	0·65	,,
	7.30	5·5	171	31·1	2·31	3·9	0·7	2·45	4·19	0·76	0·68	1·16	0·21	,,
28/2	8.0	12·5	199	16·0	1·45	2·9	0·23	2·7	5·4	0·43	0·76	1·52	0·12	marked.
	3.0	7·0	342	49·0	1·67	5·7	0·81	—	—	—	0·96	3·29	0·47	more.
	5.0	2·0	171	85·5	1·27	2·15	1·07	—	—	—	0·84	1·44	0·72	marked.
	7.30	2·5	570	228·0	0·28	1·64	0·65	0·5	2·85	1·14	0·28	1·59	0·63	less.
	8.30	1·0	684	684·0	0·08	0·55	0·55	0·2	1·37	1·37	0·08	0·55	0·55	trace.
	10.20	1·83	199	108·5	0·3	0·6	0·33	0·75	1·5	0·82	0·3	0·6	0·33	,,
1/3	8.0	9·66	399	41·3	1·45	5·8	0·6	3·0	12·0	1·24	0·4	1·6	0·17	faint trace.

Clinical Observations Not Explained by the Modern Theory.

It will be seen that during diuresis the total quantity of sugar excreted in the urine diminished by comparison with the quantity excreted in the first hour when the rate of excretion was normal; that the excretion of urea was similarly reduced, but that the excretion of chlorides was, if anything, a little increased. The blood values for sugar and chloride remained practically constant: the hæmoglobin varied only once at the fifth hour to any extent. Unfortunately, estimations of the blood-urea were not made, the specimens having been lost. I had intended to

compare the relative concentration in the urine of the no-threshold body urea and the threshold bodies, the chlorides, and sugar. As the data are insufficient, this comparison is not possible, but the main fact is unaffected that in this case, while the glycæmia remained constant, the amount of sugar excreted in the urine during diuresis diminished considerably. In my opinion, therefore, it is not possible to reconcile the results of my observations on these two cases of glycosuria in patients with a constant level of glycæmia with the modern theory of renal secretion as set forth by Prof. Cushny.

TABLE V.

Time.	Interval.	Fluid intake (c.cm.).	Urine excreted (c.cm.).	Rate of excretion of water (c.cm. per hour).	Blood sugar (per cent.).	Blood chlorine (per cent.).	Urine sugar (per cent.).	Total urine sugar.	Urine sugar excreted (grammes per hour).	Urine urea (per cent.).	Total urine urea.	Urine urea excreted (grammes per hour).	Urine chlorine (per cent.).	Total urine chlorine.	Urine chlorine excreted (grammes per hour).	Hæmoglobin (per cent.).
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	1	798	114	114	0·05	0·582	3·54	4·04	4·04	1·95	2·22	2·22	0·545	0·62	0·62	94
3	1	200	570	570	0·05	0·587	0·3	1·71	1·71	0·25	1·42	1·42	0·094	0·536	0·536	92
3.30	½	456	570	1140	—	—	0·16	0·91	1·82	0·08	0·45	0·9	0·083	0·473	0·946	—
4	½	456	513	1026	0·05	0·587	0·19	0·97	1·94	0·09	0·46	0·92	0·076	0·39	0·78	92
5	1	456	485	485	0·045	0·589	0·37	1·79	1·79	0·21	1·02	1·02	0·164	0·795	0·795	84
6	1	684	399	399	0·048	0·587	0·45	1·79	1·79	0·186	0·74	0·74	0·175	0·698	0·698	92

Speculation in a matter about which so little is known is attractive but rather idle. I would point out, however, that up to a certain point the result of the investigation appeared to support the "filtration and re-absorption" hypothesis, for during excretion of urine at a more or less normal rate, in both the diabetic and non-diabetic case, there was a remarkable correlation between the curves of the rates of water and sugar excretion. With the onset of diuresis in the second case, however, the correlation is entirely lost. Prof. Cushny writes ("The Secretion of the Urine," 1917, p. 194) as follows:—

> "Another difficulty is presented by experiments in which diuresis is superimposed on an existing phloridzin glycosuria, for if the amount of filtrate is increased while its sugar percentage remains unchanged and none of the sugar is re-absorbed in the tubules the total sugar of the urine must, of course, be augmented." (*Footnote.*—This actually occurs when diuresis is superimposed on the glycosuria of pancreatic diabetes and also in glycosuria in the rabbit from the administration of sugar.) "This is stated to be the case by Weber, while Loewe's experiments seem to be opposed to it. In order to substantiate this objection it would be necessary to show that the glucose concentration of the plasma is unchanged during the diuresis, and this has not been done."

Conclusions.

I think I may claim that my second case fulfils this condition, and that in my first case, although the blood-sugar estimations were not very numerous, there is strong presumptive evidence that the level of glycæmia remained fairly constant. It is true that my estimations were of the sugar in the whole blood and not solely of the concentration in the plasma, but it seems improbable that there would be sufficient alteration in the relative proportions of the sugar in the corpuscles and in the plasma during diuresis to account for the remarkable diminution in excretion.

It is not suggested that because my results in these cases are not to be reconciled with the "modern theory," therefore Prof. Cushny's views must be set aside completely. As I have already pointed out, my results, up to a certain point, are fully consistent with the filtration re-absorption hypothesis. It may well be that the modern theory tells a part rather than the whole story of renal excretion. For the time being I think it reasonable to accept the modern theory as correct during renal excretion at a normal rate. During diuresis induced by fluid by the mouth, however, some additional factor must be invoked besides filtration by the glomeruli and re-absorption of threshold bodies at a fixed rate by the tubule cells. What that factor is we do not know, but Hamburger's suggestion that the permeability of the glomerular membrane may be changed very considerably by an alteration in the constitution of the blood brought to it by the afferent arteriole has a great deal to recommend it. It seems that this alteration in permeability may be brought about by changes in the composition of the blood which are so slight that we are at present unable to detect them with certainty. There is other evidence that alteration of the permeability of the membrane may occur in the well-recognised fact that once glycosuria has been induced by taking glucose by the mouth it may persist for some hours after the glycæmia has fallen back to a normal or subnormal level. This condition is frequently found in the routine performance of tests of carbohydrate tolerance, and is often not associated with diuresis.

Finally, I have frequently observed that diabetics after a period of fasting will remain sugar-free with their glycæmia at a higher level than before the fast when they were passing considerable quantities of sugar in the urine. There is often no alteration in the total quantity of urine passed in these cases, and it is difficult to account for them on any other basis than that of a change in the permeability of the glomerular capsule.

It is with much pleasure that I acknowledge the valuable help of Dr. E. M. Ainscow, resident medical officer at the General Hospital, and of Dr. W. T. Hillier, the clinical pathologist, in the investigation of the second case.

SUBACUTE INFECTIVE ENDOCARDITIS.

A CLINICAL STUDY OF THIRTY CASES.

BY JOHN GRACIE, M.B., F.R.F.P.S. GLASG.,

SENIOR ASSISTANT PHYSICIAN, WESTERN INFIRMARY, GLASGOW; VISITING PHYSICIAN, BELLAHOUSTON HOSPITAL, GLASGOW.

THE modern realisation of the morbidity and mortality caused by heart disease has induced me to give some personal observation on the clinical manifestations of subacute infective endocarditis. The disease has for long been a recognised entity, but the clinical descriptions in the older text-books were somewhat vague, and as a result it was difficult to recognise and frequently missed. The disease is not uncommon, and I believe that one of the reasons which accounts for failure to recognise it is that, regarding it as an infective disease, a high remittent temperature associated with marked endocardial lesions is expected, and in the absence of a febrile temperature the progressive nature of the disease is liable to be overlooked. Sir Thomas Horder aptly described it as "a disease of great importance, partly on account of the difficulty attending its recognition, but still more on account of the difficulties attending its successful treatment."

I propose to deal with the disease as it has presented itself to me, describing its clinical characteristics as observed in a series of 30 cases which I have had under observation.

Age-incidence.

My cases have all (with two older exceptions) been in men between 25 and 35 years of age, who appeared to have been robust in early life—in fact, the majority of them had been on active service for several years in the late war. On referring to statistics I notice that 90 per cent. of cases were between 10 and 40 years of age, so that our proportion agrees in maximum age-incidence, and, while my opportunities of observing cases under 20 years of age have been limited, I believe that the disease manifests itself most commonly between the ages of 25 and 35.

Predisposing Causes.

In the case of pensioners, I have had great difficulty in eliciting a history of illness or disease prior to enlistment, but their subsequent history is easy to obtain, and the following are the diseases from which they suffered :—

Trench fever	8	Wounds	2
Dysentery	5	Rheumatic fever ..	2
Influenza	4	Enteric fever	1
Malaria	4	Starvation	1
Pneumonia	3		

It will be observed that rheumatic fever takes its place towards the end of the list, but unwillingness on the part of the patient to acknowledge having suffered from it in early life probably accounts for this. Trench fever and influenza might be grouped together as preceding and probably predisposing diseases on account of similarity in symptoms and difficulties in accurate differentiation. In all cases the blood was examined for the Wassermann reaction. Only two gave a positive result, and both had suffered from other diseases—viz., malaria and enteric fever. It would appear, therefore, that syphilis need not be regarded as predisposing to this disease.

Symptoms.

General malaise ; feeling of exhaustion ; shortness of breath ; slight palpitation or rather consciousness of fast beating of the heart, more particularly on slight exertion ; tendency to sweat readily, and frequent night sweatings.

Signs.

Appearance of Patient.—Pallor of an even more pronounced type than that generally associated with aortic regurgitation is a characteristic feature, and it is present in cases which show no signs of an aortic lesion. This pallor should at once arrest attention, and should lead one to suspect an infective endocarditis. At a late stage there is a slightly yellowish tinge—café au lait tint. With the progress of the disease blood destruction increases and the hæmoglobin may fall to 20–30 per cent. There is a marked loss of flesh.

Pulse.—The pulse-rate is accelerated, generally 80–90 per minute, though frequently up to 100 or over. It remains persistently high, even when the patient is confined to bed. It is regular and of medium or low tension. Digitalis, though administered in large doses, fails to reduce the rate.

Temperature.—The disease being insidious in its onset, continued fever is not characteristic, and the slight variations of temperature which do occur are apt to be missed. If, however, the temperature is taken regularly, slight rises up to 99° F. will be observed. These generally take place in the evenings, and at intervals which vary from three to seven or more days. Those slight rises of temperature, in the absence of any other specific cause, should arouse suspicion as to the nature of the disease. In fact, a slight irregular intermittent fever, associated with a constantly accelerated pulse-rate and pallor, are of themselves sufficient to justify a provisional diagnosis of subacute infective endocarditis. Later, as the disease progresses, the temperature tends to be constantly subfebrile in character, but rarely exceeding 101°.

Heart.—All cases which came under my observation had affections of the mitral valve on admission, while a few had, in addition, evidence of implication of the aortic valves. Cases which came under observation at an early period showed little or no evidence of cardiac enlargement, but later, as the disease progressed, the area of cardiac dullness became enlarged, the enlargement being steadily progressive, and most marked in cases where the primary lesion was mitral. Terminally, the left border of cardiac dullness extended in one case to between the anterior and mid-axillary line. This patient had on admission a well-marked mitral regurgitant murmur, later a blurring of the second sound at the aortic area, and finally an aortic diastolic murmur. The extension of the disease from the mitral to the aortic valves, as evidenced by murmurs, was an interesting point in more than half of my cases, and it was accompanied by a gradual and definite enlargement of the heart. The aortic diastolic murmur was not due to a relative incompetence, but to actual organic changes in the valves, verified by post-mortem examination. Changes in the conductivity of the heart muscle also take place, the most common being bundle lesions and varying degrees of heart-block.

Spleen.—The next most common feature is enlargement of the spleen. I have come to regard splenic enlargement as an essentially characteristic sign. All my cases showed it. In 27 the spleen was definitely palpable, while in the remaining three the area of splenic dullness was decidedly increased. The enlargement was of a gradual and progressive nature, and it was never associated with sudden pain or other evidence of infarction. The spleen is, however, tender to pressure. It is possible that an infarct may take place in an already enlarged spleen, but I am convinced that it enlarges as a result of the infective process, as in typhoid fever or malaria. On post-mortem examination no infarctions were found in any of my cases, only a chronic hyperplasia of spleen tissue.

Lungs.—The respiratory-rate was accelerated, and in the early stages nothing was discovered on physical examination beyond a slight pulmonary catarrh. As the disease progressed, breathlessness became more marked, and signs of pulmonary œdema developed. Three cases showed signs of pulmonary infarction accompanied by a copious expectoration of blood and mucus. It is here worthy of note that the clinical picture is often that of obscure or latent tuberculosis. The sputum from two cases which were sent into hospital with a diagnosis of pulmonary tuberculosis was frequently examined and found negative. On post-mortem examination no evidence of tuberculosis was found in any organ. It is possible that the diagnosis of pulmonary tuberculosis was made on account of the evening rise of temperature, cough, pallor, and night sweating, although there were no signs of lung involvement.

Liver.—While the liver enlarges coincidently with, and in a somewhat similar manner to the spleen, the rate of enlargement is not marked until the terminal stages, it being as a rule congestive. In one post mortem the liver was an excellent example of "nutmeg liver."

Kidneys.—None of my cases had hæmaturia, though all had slight and transient albuminuria at some stage of their illness, a condition which became permanent in the terminal stages.

Clubbing of the Finger-tips.—This is very common. In cases of long standing definite clubbing, accompanied by lengthening and broadening of the terminal phalanges, develops. The finger-tips differ from those seen in congenital heart disease in being pale and showing no venous stasis.

Emboli.—Petechiæ are of common occurrence and are generally confined to the trunk. They would appear to be in part due either directly to the infective agent or to small emboli. In my opinion, they are

of small diagnostic value. Emboli affecting the larger organs were not common. This may be accounted for by the fact that all my patients were under observation for a considerable time and confined strictly to bed.

Blood Cultures.—Bacteriological examination was carried out in ten cases, and only two showed any organisms. These were staphylococci of low virulence outside their normal habitat.

Case History.

The following notes on a case recently admitted to hospital illustrate the difficulty in diagnosis.

D. M., aged 25, had been acutely ill for 14 days prior to admission, but had not been well for some time previously, having suffered from shortness of breath and palpitation. Fourteen days ago he developed acute pain in the abdomen, and later marked breathlessness. Two days ago he noticed that his urine was dark red in colour and scanty, also that his face and legs were swollen. He had four attacks of rheumatic fever in early life. He was sent to hospital as a case of acute nephritis.

Condition on Admission.—Pulse, 100; resp., 40; temp., 97·2° F. He was extremely pale. His face was puffy, and there was some œdema of his feet and ankles. His skin was clear. His lungs were clear to percussion—a few moist râles were heard at both bases. His heart was enlarged to the left. There was a loud systolic murmur at the apex, and a slight diastolic murmur at the base. The spleen was palpable, and there was some hepatic enlargement. The kidneys were not palpable, and the bladder was not distended. No urine was available for examination. He died suddenly one hour after admission.

Post-mortem Examination.—Heart enlarged, evidence of old endocarditis, with subacute endocarditis affecting both mitral and aortic valves. Lungs: Evidences of slight venous congestion. Spleen: Much enlarged. Liver: Enlarged. Kidneys: Enlarged. Interstitial nephritis with capsule adherent in parts. Brain: No abnormality.

Post-mortem Diagnosis.—Subacute infective endocarditis.

Prognosis.

The disease, when once established, is invariably fatal. Periods of quiescence do occur, but they are generally of short duration, the patient as a rule dying of cardiac failure, or death resulting from embolism. Euphoria is often striking. Perhaps this is accounted for by the toxic process; at any rate, it makes the illness less distressing to the patient, who looks forward with hope to his cure.

Treatment.

I have tried various forms of treatment, and although some for a time gave encouraging results in that the patients stated that they felt better, none were permanently benefited. Some of the different forms of treatment tried were:—

(*a*) *Salicylates*, which appeared to benefit one case, the patient being alive ten months after discharge, and apparently recovered from an acute exacerbation of the disease.

(*b*) *Autogenous vaccine* was tried in one case but was of no value.

(*c*) *Mixed phylacogen vaccine.* Definite amelioration of symptoms, but of no permanent value.

(*d*) *Eusol intravenous injections* 50 c.cm. at a time. Patients became cyanosed, and complained of shortness of breath and considerable distress after the injection. The following day they felt much better, and there was a fall in the pulse-rate. This proved to be of a temporary nature. A second injection was given with the same result, but owing to the immediate distress following the injections, and the doubtful improvement, this treatment was discontinued.

(*e*) *Arsenic.* A Wassermann blood-test was made in all cases. Two gave a positive reaction, and each was treated with novarsenobillon some months prior to any evidence of the disease, and it would appear that this had no action in preventing its development.

(*f*) *Quinine salicylate*, gr. v.–x., thrice daily, appeared to have some beneficial action.

Prevention.

Owing to the failure of curative forms of treatment one naturally considers the possibilities of preventive measures. Diseases which are common in this country, and which I believe predispose to subacute infective endocarditis, are rheumatic fever, pneumonia, and influenza.

With regard to rheumatic fever, endocarditis has always been recognised as one of its chief complications, and on that account, as also on account of the tendency to relapses, patients suffering from the disease are confined to bed for lengthened periods. This, by giving the heart the maximum amount of rest, enables it to escape with the minimum amount of damage. True prophylaxis would be the removal of the causal agent, but this is difficult on account of uncertainty as to its nature. Attention should, however, be paid to the prevention of chill and damp at work, housing conditions, and the removal of septic foci in teeth, tonsils, &c. Whether homes of recovery for convalescents from rheumatic fever will ever be successful is questionable, at least the rheumatic child, who is often restless and fidgety, ought to be given a chance by strict confinement to bed. The case of the unfortunate man who has to do his work, or the housewife who has her duties to attend to, is more difficult to overcome.

It used to be said that patients who recovered from pneumonia did so "without any after-effects, and without cardiac involvement," but this cannot be regarded as an accurate statement. Of late years the tendency has been to shorten the period of convalescence, doubtless due to the desire of patients to get back to their duties. The older physicians, however, insisted on a prolonged period of convalescence, and this apparently justified their better prognosis. Now that it is a notifiable disease, it is to be hoped that many of the serious after-effects will be avoided with the better nursing and supervision in hospitals during the acute illness and convalescence. These remarks would apply equally to influenza. Both are toxic diseases, and although at the time there may be no endocardial mischief apparent, they certainly give rise to a weakened myocardium—a latent focus of disease may be established which, under provocation from some debilitating cause, will assert itself in the course of time.

The early controversy with regard to endocardial lesions resulting from trench fever would appear to support this view. It is now evident that those who contended that there were no endocardial complications based their opinion on early observations, while those who supported the opposite view did so from observations at a later stage—usually during late convalescence.

Summary.

The essential points in the diagnosis of acute infective endocarditis are: (1) pallor, (2) clubbing of finger-tips, (3) slight irregular intermittent fever, followed by afebrile intervals, (4) pulse-rate increased, (5) splenic enlargement, (6) valvular disease, (7) signs of embolism. A more prolonged convalescence and careful supervision of patients after acute illnesses are urged.

WOMEN ON HOSPITAL BOARDS AT LIVERPOOL.—A large and representative conference summoned by the Social and Industrial Reform Committee of the Liverpool Women Citizens' Association to discuss the question of the appointment of women on hospital boards was held recently in Liverpool. It appears that in a number of Liverpool hospitals, including the Royal, the Southern, and the Northern, there were no women on the boards, nor any special women's committees with powers. A resolution was carried unanimously to the effect that the presence of an adequate number of capable women on the boards or committees of management of the hospitals was desirable in the interests of efficient, economic, and sympathetic administration, and that the meeting noted with regret that a considerable number of Liverpool hospitals had no women on their managing boards, and resolved to work for the removal of this defect.

THE THERAPEUTIC EFFECTS OF ULTRA-VIOLET RADIATIONS.

BY C. LEE PATTISON, M.B., B.S. LOND.,
MEDICAL SUPERINTENDENT, KING EDWARD VII. HOSPITAL, SHEFFIELD, AND SURGICAL TUBERCULOSIS OFFICER, CITY OF SHEFFIELD.

ULTRA-VIOLET radiations can be obtained from the sun and from various artificial sources, but while the therapeutic value of insolation is now universally recognised, it is important to realise that *all* the benefits obtained by this method of treatment are not due to the effect of light.

Leonard Hill[1] has shown that the exposure of the naked body to cool air raises the basal metabolism from 50 to 100 per cent., and also that since the amount of moisture which cool air can hold is small, the effect of breathing it will be to cause a flow of secretion from the respiratory mucous membrane. These beneficial results are independent of any radiation effects and must not be confused with them. The value of "open-air" institutions is largely due to this increased metabolism caused by cold. The surprising way in which muscular tone and nutrition are kept good in patients who are confined to bed with their limbs fixed in appliances is explainable by the fact that such patients are continually shivering, and are therefore exercising their muscles. I have frequently found that the appetite and general condition of patients have been greatly improved by the production of shivering two or three times a day for short periods.

When considering the effects of ultra-violet radiation it is important to remember that no rays reaching us from the sun are shorter than 290 $\mu\mu$ in length. The rays from the carbon arc are more like solar radiations than those obtained from other sources, some of which, for example, the tungsten-arc and quartz-mercury vapour lamps, give out some very short rays. These may have a quite different physiological effect from the longer rays obtained from exposure to the sun.

So far as our present knowledge goes it would seem that there are two ways in which ultra-violet radiations may act beneficially: (1) by increasing the bactericidal power of the blood, and (2) by activating the vitamins in the body.

Increase of the Bactericidal Power of the Blood.

As a result of some interesting experiments it has recently been stated[2] that "Any insult to the skin, whether produced by ultra-violet and invisible rays, or by dark heat, or by blistering agents, appears to provoke or increase the defensive power of the body."

Probably the results are brought about in two different ways. (1) By warming the blood. This is caused by the absorption of the dark heat and the visible rays. Sonne proved that radiations by visible rays increased the resistance of guinea-pigs to diphtheria toxin, and others have brought forward evidence in support of the beneficial effect of heat in this direction. (2) By the absorption of the products of tissue damage acting as a stimulant to immunising mechanisms. Rays below about 300 $\mu\mu$ only penetrate a very minute distance through the skin. As stated above, there are no rays shorter than 290 $\mu\mu$ in solar radiation.

It seems likely, therefore, that this tissue destruction is only produced by the dark heat, visible and near ultra-violet rays, and of course, by blistering agents, &c. So far it would seem that of the ultra-violet radiations only those of the "near" region have any effect on immunisation. But other investigators claim that shorter rays have a greater chemical effect, and do penetrate the skin sufficiently to produce their results, provided that they are intense and act for some time.

Schunck[3] says: "It is certain that the radiations most effective in causing sunburn, irritation, and destruction of animal tissue are chiefly confined to the middle ultra-violet region," and that the greatest effect is between 235 $\mu\mu$ and 250 $\mu\mu$. Verhoef and Bell[4] carried out experiments which proved that it is the radiations shorter than 305 $\mu\mu$ which injure cells by chemical action. Burge[5] states that ultra-violet rays kill living cells by changing protoplasm so that certain salts can combine with it to form insoluble compounds; and that the effective radiation is between 254 $\mu\mu$ and 302 $\mu\mu$. Ultra-violet rays of short wavelengths convert oxygen into ozone, and it has been suggested that the formation of this in the superficial cells of the skin causes irritation and tissue damage. Colebrook[6] has recently shown that the bactericidal power of the blood is not always increased by ultra-violet radiations, but that in certain patients in which it is already low ultra-violet rays will depress it still further.

This will possibly be the reason why I have found that some patients get worse when treated with ultra-violet radiations. In all these cases I have noticed that the weight has decreased, and there is a marked loss of appetite and energy. Occasionally in children with osseous tuberculosis there has been an increase in activity of the local lesion, but this has not been so serious as the alteration in the general condition. Fortunately, the majority of these patients have regained their previous health rapidly on discontinuing the light treatment.

Effect on Vitamins.

Vitamin A (either alone or allied with some similar substance) has been shown to be an important factor in controlling the normal growth and calcification of the body.

Mellanby[7] has shown that ultra-violet light activates the fat-soluble A-vitamin already stored in the body, although it has no power of synthesising it, so that in this respect (in calcification and growth) ultra-violet radiation applied without giving vitamin A in sufficient quantity would have no beneficial effect. Miss Luce's work,[8] showing that the antirachitic power of milk is definitely increased if the cows be exposed to sunshine, affords additional evidence of the value of radiations in this direction. There is also some evidence that if air, through which ultra-violet radiations have passed, be breathed, a similar effect will be produced to that obtained by exposure of the skin to the rays. It is interesting to note in this connexion that Zwaardemaker[9] has shown that the place of potassium in Ringer's solution can be taken by radiations from radium, so far as regards maintenance of nutrition and function of a frog's heart.

Pigmentation.

I believe that the commonly accepted assertion that the degree of pigmentation is an indication of the resistance of the body to disease is wrong. It is, of course, well recognised that the complexion of the patient influences the amount of pigmentation; blondes pigment with difficulty and persons with red hair less easily still.

Apart from these primary differences I recognise at least three distinct types of pigmentation, which may occur irrespective of the complexion of the patient. (1) The dark reddish-brown colour, which later becomes an almost chocolate-brown—this follows exposure to the sun's rays and to radiations from a carbon arc lamp; (2) a slatey-grey colour which follows prolonged exposure to the rays emitted by the quartz-mercury vapour lamp; (3) various shades of yellow, rather similar to, but not to be confused with, the colour sometimes seen in cachectic patients. This form of pigmentation may follow the use of any source of ultra-violet radiation, and I have found it chiefly in patients who are not making satisfactory progress.

Any observer who has closely watched patients treated by artificial or natural heliotherapy, suffering from such a disease as bone tuberculosis, will have noticed that some of them with similar complexions will, under similar conditions, pigment much more

than others, *irrespective* of the condition of their general health or local lesions. I have very frequently seen patients with well-marked deep brown pigmentation with actively progressing disease, and my personal feeling is that, apart from the yellow type mentioned above, the degree and type of pigmentation are no indication of the response of the patient to treatment.

References.

1. Science of Ventilation and Open-Air Treatment, 1919, Part I., 93.
2. L. Colebrook, A. Eidinow, and L. Hill: Effect of Radiation on the Bactericidal Power of the Blood, Brit. Jour. of Experimental Pathology, 1924, v., 54.
3. Chas. A. Schunck: Jour. Rontgen Society, Eng., 1918, p. 335.
4. Verhoef and Bell: Amer. Acad. Arts and Sci., 1916, li., 640.
5. Burge: Amer. Jour. Phys., 1916, xxxix., 335.
6. Brit. Med. Jour., 1924, i., 11.
7. E. Mellanby: Brit. Med. Jour., 1924, i., 895.
8. E. M. Luce: Chem. and Industry, March, 1924.
9. Jour. Physiol., 1920, liii., 273.

THE USE OF PITUITARY WHOLE GLAND IN CHRONIC CONSTIPATION.

BY BERNARD MYERS, C.M.G., M.D. EDIN., M.R.C.P. LOND.,

PHYSICIAN TO THE CHILDREN'S CLINIC, MARYLEBONE-ROAD, ETC.

THE result of administering pituitary whole gland by the mouth in this case was so striking as to warrant a record being published.

The patient, a girl aged 14 years, was first seen by me early in January last year. She had suffered from constipation from birth, the bowels acting, as a rule, only once in seven or eight days. She looked very ill. The skin and her general appearance suggested a toxic condition. There was practically no colour in the cheeks and her lips were white. She possessed much less energy than most girls of her age and it required a great effort on her part to enable her to take any interest in things generally. The appetite was large, she slept fairly well, but was restless at night. There were a few glands in the right iliac fossa. Her net weight was 4 st. 9 lb. 10 oz., and her height 56 in. In her general appearance her mother stated that she took after her father. Constipation did not run in the family, but there had been a tendency to constipation with the mother throughout her life. The child had previously suffered from measles and whooping-cough, from which she had made excellent recoveries. When 3 years of age a motor-car ran over her, but apparently caused no injury. With regard to her bowels, the mother stated that her daughter went to stool each day but failed to have an action. She did not suffer from worms.

Treatment.—She was given mist. alba night and morning and this was effective for a time. Later on mist. mag. co. was tried with fair success. Tr. nuc. vom. benefited her in certain respects, but the constipation remained as before. Liquid paraffin proved distinctly useful, but a tablespoonful three times daily was necessary to ensure an action of the bowels, and even that did not always prove successful. On some days the paraffin was passed without fæces accompanying it. A month after she was first seen, a bismuth meal, and, later, barium injections per rectum showed some ballooning of the sigmoid and of the upper part of the rectum. The condition of the skeletal muscles was distinctly atonic, and the bowel seemed to be similarly affected.

After a further two months' trial on various laxatives, purgatives, and tonics, which merely opened the bowels with difficulty and did not in any sense alleviate the toxæmia, I determined to try the effect of pituitary whole gland to see if it would encourage normal contraction of the bowel. The effect of the subcutaneous injections of pituitary extract upon the bowel is well known, but it would be unthinkable that any patient should continue such injections for the rest of her natural life. For practical purposes, therefore, it would be necessary for the endocrine substance to be administered per os. One grain of pituitary whole gland (Armour) was administered thrice daily after meals, the liquid paraffin in small doses being continued. Apparently, as a result of this treatment, the bowels were now opened daily. The liquid paraffin was discontinued after a couple of weeks, but the pituitary whole gland was continued. The bowels have continued to be opened daily by this method up to the present time. The mother informed me that about every ten days the bowels were not open for two days, but this coincided with the days upon which the patient had not been given the pituitary gland, which the mother buys herself; on four or five occasions she has not ordered it in time. It is interesting to note that immediately the pituitary is resumed the bowels open normally again. The whole appearance of the child has changed since she has had the pituitary treatment. She looks now a fine healthy girl, the lethargy has disappeared, and she is full of energy and mental activity, in marked contrast to her previous state.

I asked my colleague, Dr. H. E. Archer, to do a glucose tolerance test, which he did, as follows, on June 6th, 1924.

Blood-sugar at 2.25 P.M., 0·11 per cent. (50 g. of glucose given at 2.30 P.M.); ½ hour after glucose, blood-sugar, 0·17 per cent.; ¼ hour after, 0·19 per cent.; 1 hour after, 0·15 per cent.; 1½ hours after, 0·135 per cent.; 2 hours after, 0·105 per cent. The urine collected at end of two hours gave a very faint reducing reaction. In the first half hour the blood-sugar rose above the normal threshold and there was at that period presumably a slight excretion of sugar in the urine. The fall to normal was slightly delayed.

A further test will be carried out later on (1) while taking pituitary extract and (2) after being for four days without it, to compare results. Dr. Archer suggested that it might at first sight appear that one was dealing with a potential diabetic. The case will require close watching for a year or more and further tests will be necessary before it will be possible to determine this matter.

Cushny [1] states that intravenous injections of an aqueous extract of pituitary gland cause pronounced effects in certain organs, especially in those containing involuntary muscle. When injected intravenously the blood pressure rises slowly and remains elevated for some time. The rise in blood pressure is longer maintained, but is smaller and less abrupt, according to Cushny, than when it is produced by adrenalin. The heart is generally slowed. "The stomach and intestine are aroused to stronger contractions under pituitary extract and their tone is increased, the relaxation being much less complete." He quotes Dale in the statement that the uterus contracts more strongly and relaxes less completely after pituitary extract, which he thinks arises from a direct muscular effect after hypodermic injection of pituitary extract. The increased secretion of the mammary glands Cushny believes to be probably caused through the rapid expulsion of the milk by the contraction of the unstriated muscles of the gland. It is interesting to note that Cushny states that "the administration by the mouth of the dried gland or its extract is not attended with any obvious result."

In a recent case of adiposis dolorosa which I showed before the Royal Society of Medicine the chief symptoms had disappeared and the condition had been nearly cured, or at any rate distinctly alleviated, by the oral administration of pituitary whole gland. Encouraged by this I determined to try the same method of procedure in the present case, and it appears to have been quite successful. Apparently the case is similar to one of hypothyroidism in which small doses of thyroid gland given daily effect such wonderful improvement in the mental and physical condition of the patient. The sugar tolerance test in the meantime is just interesting in that it is not quite normal, and yet so far we have not attained the typical pituitary glucose tolerance curve which was obtained in the case of adiposis dolorosa.

It is obvious that it would not do to administer pituitary promiscuously to all cases of constipation, as it would only seem to be indicated where there is a natural atonic condition of the bowel due to lack of this endocrine. Still, there must be many sufferers of this type, and it would be of distinct interest to learn the experience of others in dealing with these cases.

[1] Cushny: Pharmacology and Therapeutics of Drugs, 7th edition. J. and A. Churchill.

Clinical and Laboratory Notes.

CONGENITAL MALFORMATION OF HANDS.

BY C. MARSH BEADNELL, C.B., M.R.C.S. ENG.,
SURGEON REAR-ADMIRAL, R.N.

THE following case of congenital malformation seems worthy of record.

The patient, aged 22, serving in the army, had been admitted for bronchial catarrh and hypertrophied tonsils. It was noticed that the hands were malformed. They presented in general outline the shovel-shaped "hands" of a mole; the digits, especially the fourth and fifth, were permanently deflected towards the hypothenar side. The grip was firm and no practical disability existed in consequence of the condition. There had been no traumatism. His father stated his son was born with the defect, and he thought a maternal uncle had a similar deformity. Wassermann reaction, taken on two occasions at an interval of a week, was positive. Denied acquired lues.

The following are the chief points differentiating the skeleton of the hand from the normal:—

1. The capitate bone fails to articulate with the fourth metacarpal.

2. The hamate bone of the left hand articulates on its distal hypothenar aspect with a small additional carpal bone. It was at first considered this was the pisiform which had been displaced from the triquetral bone to the hamate, but the radiologist (Surg.-Commander J. H. Rooney) is of the opinion that the pisiform is in situ proprio, and that the ossicle in question is a true additional carpal bone. It is not in evidence on the right side. The hamate also abnormally articulates with the third metacarpal.

3. The first and second metacarpals are in abnormal mutual articulation.

4. The fourth metacarpal shows considerable shortening, and is, apparently, fused throughout its length to the proportionally shortened fifth metacarpal. The common base of the two fused bones articulates with the hamate, and, on the left side, with the small ossicle mentioned above. The fourth metacarpal is prevented from articulating with the capitate bone by the abnormal junction effected between the hamate and third metacarpal.

5. The long axis of each of the phalanges, normally continuous with that of its metacarpal, is inclined towards the hypothenar aspect, that of the second and third digits being at an angle of 25°, of the fourth 45°, and that of the fifth being 80° to 90° to the normal. The first phalanx of the fifth finger articulates with what would appear to be the base of the fifth metacarpal.

Chatham.

A CURIOUS CASE OF PARTIAL UTERINE INVERSION.

BY H. J. DREW SMYTHE, *M.C.*, M.B., M.S. LOND., F.R.C.S. ENG.,
ASSISTANT OBSTETRIC PHYSICIAN AND GYNÆCOLOGIST, BRISTOL GENERAL HOSPITAL.

SINCE chronic post-partum inversion of one half of a uterus didelphys must be a condition of extreme rarity, I am putting this case on record.

The patient, Mrs. G. S., aged 32, was sent to me as an emergency case by Dr. R. Britton, of Bristol, on account of recurrent attacks of severe hæmorrhage following her confinement.

The patient had had a left tuberculous hip since childhood for which she had had six operations, and it was now fixed and quiescent. Her obstetrical history was as follows. Married for nine years and had three previous pregnancies. At the first she had a stillborn child at eight months, at the second the child was born alive but developed paralysis, presumably due to difficult forceps, while her third was stillborn at full time. She states that she had chloroform and an operation for all of them in a hospital.

The present confinement took place on Feb. 10th of this year, when she was attended by a midwife and delivered of twins, one of whom died after three weeks. She remained in bed for 14 days. A week after the confinement uterine hæmorrhage commenced and was continuous up to her admission to the Bristol General Hospital three months later, at times being extremely severe.

Condition on Admission.—When admitted to hospital she was pale and collapsed and blood was trickling from the vagina at a fair rate. She was too ill on admission for operation or even examination and restorative measures were adopted. When slightly better I examined her and found in the vagina a large fleshy mass, which bled on manipulation, hanging by a fairly thick pedicle from one side of the cervix which was patent for one finger. I made a provisional diagnosis of a cervical polypus, and the general condition having improved she was taken to the theatre and examined under an anæsthetic with a view to operating on whatever I might find. I then found that the body of the uterus was absent, and, to the right of the pelvis, a mass which I took to be an enlarged tube and ovary; in consequence I diagnosed chronic inversion.

Operation.—I attempted to reduce the inversion by pressure but was unable to do so, and in consequence I opened the abdomen with a view to incising the cervix at the internal os. I found a normally shaped uterus lying to the right of the pelvis having a tube and ovary attached to the right cornu, while the left side was smooth and completely covered with peritoneum. I could find no sign of the left tube or ovary and so presumed that they were inside the inverted half, neither was there any sign of an opening in the peritoneum at the side of the uterus through which the inversion had taken place. I immediately closed the abdomen and performed vaginal hysterectomy of the inverted half.

The patient made a complete recovery from the operation, but convalescence was prolonged by a left-sided pleural effusion of tuberculous origin; she returned home quite well some two months after the operation.

The interesting points about the case, besides its extreme rarity, are, first, that this abnormality was not discovered before, in spite of the fact that her three previous confinements were in a large hospital and necessitated instrumental delivery; secondly, her menstrual cycle was not fortnightly, as occurs in some of these cases; thirdly, that presumably in this confinement a fœtus developed in each half of the uterus; and lastly, that she did not die or at least experience profound shock when the acute inversion occurred at the confinement. That it did occur then I do not think there is any doubt, as I was told by her friends after my operation that "something round and fleshy came out of the opening after the confinement and the nurse put it back."

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

THE opening meeting of this section was held on Oct. 11th, when Sir ARNOLD LAWSON delivered his presidential address on

TINTS AND THEIR VALUES.

He said the subject of tints had become a somewhat prominent one recently, and much had been written—reasonably and unreasonably—about the destructive effects of ultra-violet rays on human eyes. Owing largely to alarums for which the optical trade was responsible, the public seemed to have become largely imbued with a haunting fear of daylight, so that a large body of healthy people were wearing tinted glasses for protection. These glasses seemed to Sir Arnold Lawson to have been prescribed in an indiscriminate and indefinite way. Assuming the wave-theory of light to be correct, it was known that the visible spectrum extended from waves of light of 700 μμ at the red end to 400 μμ at the violet end. The infra-red rays could pass into the eye unimpeded, and the ultra-violet rays caused harmful chemical action. The eye possessed no direct protection from the luminous and infra-red rays, but Nature provided a good deal of protection against the ultra-violet rays. Experiment showed that this protection was furnished by the cornea and the crystalline lens, especially the lens; the cornea absorbed all waves of shorter length than about 290 μμ, while the lens was impervious to ultra-violet rays of shorter wave-length than 350 μμ. In the laboratory the ultra-violet radiation had been traced to waves of about 200 μμ, hence only a very small proportion of possible ultra-violet radiation could reach the retina normally. And ordinary sunlight at low altitudes was rather poor in ultra-violet rays; it contained few of shorter wave-length than 350 μμ. Also, protection from the heat radiation at the red end was to some extent afforded by the absorptive properties of the pigment lining the back of the iris and choroid, and by the pupil's power of contraction. In all human races the eye was self-adapted to endure without harm the sunlight of the particular part of the world they lived in. Hence healthy eyes, in ordinary circumstances, did not need protection by tints. The situation was, however, somewhat complicated by various subsidiary factors, the most important being (1) the intensity of the light, (2) the duration of the exposure, (3) the presence of glare, (4) occupation or trade. With regard to the first, extreme degrees of sunlight, especially in the rarefied atmosphere of mountains, were abnormally charged with ultra-violet and infra-red radiations, and this implied an increased dosage. The chief danger from the eye experiencing intense sunlight seemed to be from the red and not from the violet end of the spectrum. Concerning the duration of the exposure, under certain conditions of health, prolonged exposure to even moderate degrees of light might be harmful, due to a lowering of the natural resistance. As to glare, this might considerably complicate the patient's problem. Glare was the unpleasant effect caused by excessive reflection from below. Usually glare proceeded from snow, desert sand, rock, water, or chalk. The light, in glare, struck the eye in an unaccustomed manner, and it was something beyond normal experience. Snow reflected about 70 per cent. of the existing sunlight, and snow enabled the effects of intense light to be felt even when the direct sunlight was of but moderate intensity. The effects of glare were exerted rather in the luminous and infra-red regions of the spectrum than in the ultra-violet; hence it was reasonable to consider snow-blindness as due not so much to excess of ultra-violet radiation as to excess of exposure to the luminous and infra-red radiations. The conjunctivitis accompanying snow-blindness was probably due to sunburn of the conjunctiva. Dealing with the effects of occupation, he said that such trades as acetylene-welding exposed the worker to intense ultra-violet radiation; and, on the other hand, glass-blowers and workers in foundries were subjected to excessive heat-radiation.

Spectroscopic Values.

The President then passed to a consideration of the spectroscopic values of various tinted glasses. For this study, he selected London smoke No. 3, three shades of amber, five shades of Fieuzal, Crookes A, A2, B, B2, and peacock-blue. All the glasses so tested were of 2 mm. thickness, except that peacock-blue was examined in thicknesses of 0·5 and 2 mm. Thickness of glass was a most important point. The experiments were arranged by Mr. Hamblin, and the spectroscopic photographs he showed were executed by Dr. Judd Lewis, professor of physics at University College. These latter were embodied in a chart shown. With regard to ultra-violet radiation, the greatest absorptive power was noted from the darker Fieuzal tints, while the peacock-blue and the Crookes glass produced much the same effect. Next in order came amber shades, and the least protective was No. 3 shade of London smoke. All the Crookes shades had practically the same absorptive power, and none of the Crookes shades protected the eye against wave-lengths shorter than 350 μμ. The only tints which cut off all ultra-violet radiation were the darker shades of Fieuzal. For acetylene-welding the darker shades of Fieuzal were much better than Crookes glass, and in high altitudes and for snow-blindness nothing gave so much protection and comfort as Fieuzal 4 and 5 or peacock-blue. Concerning red and infra-red radiation, the peacock-blue was by far the most effective, especially when 2 mm. thick, next in order being Crookes B2 and Fieuzal 4 and 5. The various shades of amber were less effective than the corresponding shades of Fieuzal, and less so than a medium shade of London smoke or Crookes B2. All the various kinds of tint were equally effective in generally diminishing the luminous spectrum. Prescribers of tints should always pay special attention to the thickness of the tinted glass. Another series of photographs were taken showing the absorption of the tints when of only 0·5 mm. thickness. The absorption effect, in the case of the thin glass, was greatly lessened. A glass of less than 2 mm. thickness was likely to produce an effect considerably less than was expected. This consideration was of special value when ordering a tint without any incorporated lens, and when ordering a tint to be overlaid on a minus lens. In these circumstances it was well to specify the thickness of glass to be employed. It would be valuable if some scientific body, he said, such as this section, could agree on uniformity of glass thickness for prescriptions for these tints. No such uniformity existed at the present time. The President then passed to a consideration of the adaptation of these principles to the wearing of tints in health and disease.

Tints for Eyes Healthy and Aphakic.

Under ordinary circumstances, protection by ultra-violet glasses was quite unnecessary. When extraordinary circumstances were apt to be encountered, the two main factors to be considered were the luminous and the heat radiations, rather than the ultra-violet. In high sunlight and glare, the darker shades of Fieuzal were much more effective than Crookes glass, and for extreme cases peacock-blue was the most satisfactory. Artificial light was not stronger in ultra-violet radiation than was sunlight. Dr. Leonard Hill recently stated that in the case of an oil lamp, 97 per cent. of the energy was in the infra-red region, and of electric incandescent lamps, 95 per cent. Crookes A or A2 glass had the superiority that it afforded a general shade without materially disfiguring the appearance or altering

colour values. There were many people with quite healthy eyes who were, however, physically or mentally abnormal. Often in physical disease and neurasthenia the general function of the eyes was impaired, and help was needed for them. Smoked glass was still as valuable as ever, but it was somewhat depressing, and Fieuzal did not so much interfere with the colour scheme and was as effective as smoked glass in other respects. The wearing of tints was apt to become a habit, and thus to lead to inability to endure bright light unaided.

With regard to wearing tints in disease and as a prophylactic against disease, it had been shown that cataract in glass-blowers was due to harmful infra-red radiation, not to the effect of ultra-violet rays. The best prophylactic tints were Fieuzal 4 or 5 and peacock-blue. In all cases of cataract tinted glasses should be worn in bright sunlight or glare. Glare by artificial light should be shunned as much as glare in sunlight. He often ordered two degrees of shade—one for moderate, the other for extreme degrees of light. After the extraction of cataract, the eye was deprived of its most powerful factor of protection against ultra-violet radiation. All aphakic patients should wear some protective tint out of doors, except on dark and cloudy days. In active inflammatory disease of retina and choroid he always ordered peacock-blue, which cut off all infra-red radiations, and most of the yellow and orange also. It had a very soothing effect on the patient.

Discussion.

MR. HAROLD GRIMSDALE, in proposing a vote of thanks to the President for his address, thought a further use of tinted glass was to be found in the case of people towards middle life who manifested Pulfrick's phenomenon. That authority showed, by a series of experiments, that the perception of a stimulus varied with the intensity of the stimulus; therefore, if by any means the stimulus reaching one eye was weakened, as by putting tinted glass in front of it, the position of a moving object was falsely projected. Some people, for this reason, found a difficulty in exactly timing their strokes in sport. Sometimes after retro-bulbar neuritis, although the form perception had been recovered, the light perception had been somewhat reduced, and a moving object was seen in the wrong position.

MR. ERNEST CLARKE referred to the early electric light with the carbon point, and the glare produced; and mentioned with satisfaction the present practice in many buildings of brightly illuminating a white ceiling, thus allowing the room to be served by a soft diffused light. A great point about Crookes glass was that it did not cut off luminous rays.

MR. MALCOLM HEPBURN said he had found that the wearing of peacock-blue glasses on mountain climbing expeditions was not comfortable; the glasses had to be worn the whole time, whether one was climbing rock or snow, and differentiation was so difficult that a false step was easy. Green was preferable, in his experience, for these conditions.

MR. G. H. POOLEY (Sheffield) agreed that among the furnace-men the wearing of peacock-blue glasses seemed a source of great comfort, and certainly enabled the work to be done efficiently. In the North of England it was found that optical testers were ordering Crookes glasses in a wholesale fashion, with no such reasons as actuated the medical man, and the public felt that the extra price betokened outstanding merit. Healthy people with normally healthy eyes resorting to tinted glasses was a thing the profession should set themselves to discourage. He did not think it had been substantiated that infra-red rays caused any definite changes in the lens.

MR. BERNARD CRIDLAND (Wolverhampton) said he understood from the manufacturers of Crookes glass that the tint had little to do with its optical properties, and that the tint was added because otherwise the public would not think the price was justifiable.

MR. CYRIL WALKER (Bristol) referred to the success of smoky amber-coloured glasses in the case of a friend in Labrador; these enabled him to hunt and shoot without discomfort.

MR. TREACHER COLLINS also had a word of praise for amber-tinted glasses, following upon his own use of them. When people who came to him were likely to be exposed to ultra-violet rays he ordered them amber-coloured glasses. One such patient went to Tibet, and when he came back he said the rest of the party had snow-blindness, but he, having worn the glasses, was immune. He agreed that cooks and others exposed to heat derived relief from wearing peacock-blue glasses. He would like the President to extend his researches to pebbles.

MR. A. D. GRIFFITH thought the chief value of Crookes A lay in its absorption of the yellow band, by which the luminosity was reduced; this was the centre of the diffraction spectrum, and was the region of greatest luminosity.

Exhibition of Case.

MR. RAYNER BATTEN showed a patient with a peculiar appearance in the optic disc, which might be due to either a swelling or a depression. It was situated behind the scleral ring. Possibly it might be a clear-walled cyst.—The PRESIDENT'S view was that it was a hole, with a vessel running across the bottom of it. There was a strong parallax.—MR. TREACHER COLLINS thought it might be a crater-like depression filled with neuroglial tissue, such as described by Coats.—MR. F. A. JULER agreed with the President's view.

DR. A. F. MACCALLAN read a paper giving his experiences in ophthalmic practice in Egypt, discussing the various operations, and his own procedure in the course of his work there.

SECTION OF PHARMACOLOGY AND THERAPEUTICS.

UNIVERSAL CURES, ANCIENT AND MODERN.

ON Oct. 14th Prof. A. J. CLARK delivered his presidential address, taking as his subject the consideration of some forms of quackery. Any general discussion of quackery, he said, was far too big a subject for a single paper, and therefore he would limit his remarks to certain universal cures, brought forward by men of considerable medical knowledge, who nevertheless appeared to have genuinely believed that they had discovered a universal cure for disease. Most of these cures appeared to have some real or supposed connexion with electrical phenomena. About 1750 the idea began to spread that the mysterious new phenomena of electricity and magnetism were manifestations of a force which, if properly applied, would act as a remedy for all known diseases.

Francis Anthony Mesmer.

This vague popular idea was first exploited on a large scale by Francis Anthony Mesmer (1733–1815). Mesmer started with an interest in astrology, and wrote his thesis for the M.D. of Vienna on the subject of the influence of the planets on the human body. He next spent many years experimenting with the Imperial Astronomer, Père Maximilian Hell, on the effects produced by magnets when applied to the diseased body, and he attained considerable success by practising in Vienna along these lines. He discovered, however, that he could influence patients without magnets and even without touching them, and thus developed a form of treatment by suggestion. Professional jealousy drove him from Vienna, and he went to Paris in 1778, where he attained sensational success by methods which really consisted in treatment by suggestion reinforced by an imposing display of imitation electrical apparatus. Mesmer enjoyed the

support of a large and powerful section of Parisian society, but his methods soon found imitators and the wholesale exploitation of hysteria forced the Government into action, and a strong commission was appointed, including amongst its members Lavoisier and Franklin. After five months' inquiry the commission decided that Mesmer's apparatus was incapable of producing any electrical or magnetic effects. They admitted that patients were profoundly affected, but thought that more harm than good was likely to be produced and recommended the suppression of Mesmer's practices.

The most interesting points about Mesmer's success are as follows: he really did discover something—namely, the extraordinary effects that suggestion can produce in disease; on the other hand, he firmly convinced both himself and his patients that a complex and imposing apparatus, his famous tub, possessed marvellous powers of healing by the magnetic force it exerted, and yet the tub was incapable of producing the slightest electrical effect of any kind. The general similarity between Mesmer's tub and Abrams's oscilloclast is very striking.

James Graham.

In 1780 James Graham, who had studied medicine in Edinburgh and had picked up some knowledge of electricity in America, began to exploit electricity as a cure for all diseases. He converted a large house in the Adelphi in London into one of the most remarkable palaces of quackery that has ever been known. This Temple of Health was furnished throughout with most lavish ornateness—statues, armour, painting, immense pillars and globes of glass, remarkably arranged plates of burnished steel, and electrical apparatus of every description were included in the decorations. The general effect was intensified by soft music from an invisible orchestra and perfumes of spices. The chief shrine of the temple was the Grand Apollo Apartment; this contained a throne, and above the throne a crown was suspended from which electric discharges could be produced. Patients were treated by being placed on the throne and having electric discharges played upon them. Graham was a tall, handsome man of commanding presence, and he reinforced the attractions of his electric sparks by providing a strong sex interest. He gave a lecture on the cure of sterility, with an entrance of six guineas, and in the words of a contemporary reported: "He uses the plainest language in dealing with the parts concerned with generation, yet ladies as well as men crowd to hear him without scruple." Graham issued his lecture in pamphlet form at the price of a guinea, and even by modern standards it must be ranked as remarkably obscene. In addition, Graham's temple contained the famous piece of apparatus, his "celestial bed." This was an ornate couch around which electric discharges could be produced. The bed was guaranteed as a cure for sterility, and couples were allowed to use it on payment of a fee of £50. There was, however, another side to his character, for he gave very sound hygienic advice to his patients, recommending cold baths and fresh air, ideas that were then extremely uncommon. In the later years of his life Graham became insane.

Elisha Perkins.

Prof. Clark considered the vogue of Perkins's tractors to be the most interesting example on record of the sudden rise and fall of a universal delusion regarding a universal cure. For many years Perkins, who was the son of a doctor and a graduate of Yale, lived as a successful practitioner in Connecticut; he was a man of fine physique and remarkable for his untiring energy. He was respected by his fellow practitioners, and acted as chairman of the local medical society. His strong personality and devotion to his professional duties won him a high prestige amongst his patients, and he was much impressed by the amount of benefit that patients appeared to derive from his mere presence. Perkins concluded that his personal influence was due to some occult magnetic force, and made experiments in treatment by the application of magnets and metals to the diseased parts. In the year 1796 he invented his famous metallic tractors. These tractors were two sticks of metal, about as thick as lead pencils, one looking like brass and the other like steel. They were made of a mixture of various metals, including silver and gold, and were sold for five guineas a pair. Perkins believed that these tractors were capable of benefiting or curing practically all diseases both of men and animals. Their method of application was as simple as the tractors themselves, for it consisted in simply drawing the tractors downwards over the affected part for 20 minutes, and no previous knowledge was apparently needed for their application. Perkins demonstrated the use of the tractors in a number of hospitals, and his methods were endorsed by numerous doctors and professors, and he received the support of many of the leading men of the country such as governors and judges. In 1799 yellow fever ravaged New York, and Perkins went there to combat the epidemic with his tractors; he caught the disease and died after five days' illness at the age of 59. This ending proved conclusively Perkins's absolute sincerity. Yellow fever was not a disease which anyone would encounter with a remedy which they knew to be worthless, but one would have imagined that his death would have raised doubts concerning the efficacy of his tractors. The vogue of the tractors was, however, undiminished, and reached its height in England. In 1804 a Perkinean Institute was founded in London, with Lord Rivers as president. The institute enjoyed the support of 8 professors of four different universities, 21 physicians, 19 surgeons, and 30 clergymen. It is said to have had a larger endowment than any other hospital in London. There was, of course, opposition to the prevailing craze. In 1799 a Dr. Haygarth, of Bath, performed a few experiments with the help of some friends. They explained fully and impressively to a group of hospital patients that a miraculous new remedy had been discovered, and proceeded to treat them with imitation tractors made of wood. The results were striking; most of the patients declared themselves immediately cured or greatly benefited, although one or two stated that the pain of the treatment was so intense that they could not endure it. The hospital was soon surrounded by an excited mob demanding treatment with the new remedy. The experimenters apparently had a rather difficult and dangerous time when they had to explain that the whole business was a hoax.

Perkinism was a true artistic triumph in that a maximum effect was produced with the simplest possible technique. Half the civilised world was induced to believe that any disease could be cured by drawing over the diseased part two sticks of metal for 20 minutes. Twenty years later when the bubble had burst it still seemed incredible to one who remembered the craze that the whole thing should have been a complete delusion. The idea that an enormous effect can be produced without any rational cause is offensive to the ordinary beliefs of mankind, and with every craze one hears the identical argument that there must be something in it because it is so widely believed and supported. Perkinism was a remarkably clear-cut demonstration of the falsity of this assumption, and the whole history of the process shows how completely judgment can be inhibited by mass suggestion.

Albert Abrams, 1863–1924.

Dr. Albert Abrams was a medical graduate of Heidelberg, and practised for many years as an orthodox practitioner in San Francisco. About 15 years ago he began to seek for a universal cure for disease, and first brought forward the cult of spondylotherapy, which was a blend of osteopathy and chiropractic, with some of the more glaring absurdities toned down. Spondylotherapy, however, was dwarfed by Abrams's next step, his discovery of the famous electronic reactions.

The electronic reactions of Abrams are obtained by two machines, one a diagnostic machine and the other

a curative machine, of which the diagnostic machine was the original and fundamental "discovery." An examination of Abrams's publications, the lecturer said, showed that his ideas developed step by step from some theories put forward in 1913 by an electrician who detected by delicate galvanometers the well-known skin currents, and thought that their measurement would provide a means of diagnosing and locating disease. This theory advanced by an electrician with no knowledge of medicine was developed by Abrams, who had some knowledge of medicine, but apparently no knowledge of electricity. This accounted for the final bizarre form of his theories. Naturally Abrams was able to get equally good results whatever modifications were introduced into his apparatus, and his followers have found the same.

Abrams soon passed from the diagnosis to the treatment of disease. Starting from the fundamental idea that disease is due to derangement of the vibration rates of the electrons, he sought a method of altering these rates, and devised his oscilloclast, a form of electrical interrupter. The oscilloclast was intended to pass into the body electronic energy of the same wave-length as the erring electrons in the diseased tissue. Abrams's theories violated all the known laws of physics and physiology even more completely than did the theories of Perkins. The great expense of the machines rapidly provided a strong commercial interest in support of the electronic methods, and public interest was sufficiently aroused for a leading popular scientific paper, the *Scientific American*, to offer to undertake an impartial investigation of the whole matter. This proposal was endorsed by the electronists in general and Abrams in particular. The committee of investigation found, however, that it was practically impossible to arrange even the simplest tests, and the investigation which they imagined would take a few weeks took nearly a year. The final report, just published, simply stated that as far as the committee could ascertain the so-called electronic reactions did not even exist.

The general argument of the electronists was that tests were superfluous since they could support the truth of their claims by innumerable testimonials from patients cured of every kind of disease, but unfortunately, the lecturer said, history failed to record any variety of quackery that had failed to obtain testimonials from persons who had genuinely believed themselves to have been benefited by its methods.

The lecturer concluded by saying that these universal cures simply represented the old quest for the Elixir of Life in a new form, and arose to satisfy the fundamental craving of the mass of humanity for a miraculous cure for disease.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.

A MEETING was held under the auspices of this Association in the rooms of the Medical Society of London on Oct. 8th, with Dr. L. R. LEMPRIÈRE, the President, in the chair, when a discussion took place on

The Relative Values of Stone-milled and Other Flours and Breads, &c., in Relation to the Nutrition of the Growing Child.

Dr. ROBERT HUTCHISON opened the discussion by pointing out that the subject had given rise to much controversy which was still continuing. He himself could claim to be fairly impartial, as although after considerable study of the question some years ago he had concluded that the balance of scientific evidence lay in favour of white bread, recent evidence, including that relating to vitamins, had to some degree modified his opinion, and he now thought that on the whole the advantage lay with stone-ground bread. He was, however, uncertain how great that advantage was. Dr. Hutchison then explained the important differences in the chemical composition of the various layers of the wheat berry. The outer protective covering, known as bran, consisted of two layers—an outer coat consisting chiefly of mineral matter and cellulose, and an inner coat with some protein. The endosperm forming the great bulk of the berry was formed mainly of starch with some granules of protein (glutein) interspersed among the starch. The germ or young plant formed only 1½ per cent. of the whole berry and consisted of protein, fat, and mineral constituents (especially phosphorus), with only a little starch. The water-soluble vitamin present was contained mainly in the germ and parts of the bran, while the endosperm was almost free from vitamins.

Modern roller mills usually produced a white flour containing about 70 per cent. of the berry from the endosperm only. The old-fashioned stone-ground flour contained about 80 per cent. of the berry, and included all the endosperm, much of the germ, and inner layer of bran. Hence the stone-ground flour was richer in proteins, phosphorus, and vitamins than the roller mill flour. The difference in total protein content was certainly not very great, since the inclusion of the whole of the germ would only raise the protein content by 0·6 per cent. above that of white flour, and in some cases it even happened that a white flour made from the endosperm of a strong wheat contained more protein than a stone-ground flour from a weaker wheat. But it was now realised that the quantity of protein was not the sole question; the quality might be even more important, since different proteins varied greatly in biological value and tissue-building capacity. The proteins of the germ were now known to be peculiarly valuable biologically, and worth much more than those of the endosperm. The recognition of this was one of the great advances in the subject made in the last 20 years. Phosphorus was another constituent in which stone-ground flour was superior. While little was known about the exact combination of this, it was undoubtedly present in a form available for growth and of real value. Vitamins were the third important constituent in question, but Dr. Hutchison would not discuss these in detail since other speakers would refer to them. With regard to digestibility, there was no appreciable difference between stone-ground and white flours if the breads were well made. Experience in the war showed that, if finely ground, even wholemeal flours were absorbed far more completely than had been supposed.

Considering the bearing of these facts on the nutrition of children, the speaker pointed out that a child had three especial requirements. First, abundant energy value or calories, of which it had been calculated that for growth in weight of 2 kilos a year alone a consumption of 800 calories a day was necessary. Secondly, a high protein content compared with that needed by adult life, and of the proteins some must be of good biological value. Much mineral constituents, especially phosphorus and iron, were also necessary. Lastly, sufficient vitamins were essential. The extent to which these requirements were met by the two forms of bread was as follows. In energy value both forms were sufficient. In protein content the wholemeal or stone-ground flour showed a definite advantage owing to the high biological value of its proteins. It was true that in children fed on an abundant mixed diet the protein content of their bread was not of great importance, since proteins of high biological value were best obtained from animal foods. But in children whose diet consisted chiefly of bread with only a little milk or meat, this difference in proteins between the two breads might make the whole difference between a good diet and a bad one. Similarly with the mineral constituents an abundant mixed diet contained plenty of calcium salts in milk and of phosphorus in eggs, but a diet composed chiefly of bread might easily be deficient, especially in phosphorus. The question of vitamins Dr. Hutchison preferred to leave to other speakers, but he considered that any opinion as to the relative values of white and stone-ground flours must depend mainly on the importance attached

to these substances. He personally thought their importance was exaggerated at the present time, although he agreed that vitamins were necessary for healthy growth, and that their absence could cause certain diseases as beri-beri or scurvy. In 25 years at the London Hospital he had only seen one case of beri-beri (from the East) and one of adult scurvy (as distinct from the quite different infantile scurvy), and he considered that if diets were so frequently deficient in vitamins as to cause much vague general ill-health there would be a larger number of cases that fell over the borderline into fully-developed scurvy or beri-beri. He concluded that if a diet was right in the other respects, such as calories and protein content, the vitamins could be left to look after themselves. The best course was to aim at an abundant mixed diet, and the proper solution of the problem was to make food cheap and abundant. Given that, the vitamin question and that of white or wholemeal flour was relatively unimportant.

Dr. C. E. SHELLY (Haileybury) continued the discussion by saying that most of those present would agree with the general statements of Dr. Hutchison. He himself wished to call attention to three important facts bearing on the question. First, the experience of British and coloured troops in Mesopotamia during the war, as related by Sir David Bruce in his presidential address at Toronto. This experience showed conclusively that troops whether white or coloured suffered from beri-beri when fed on white bread, but were practically free from it when fed on native bread. Secondly, former prison experience showed that criminals doing hard labour would keep healthy on a diet of (stone-ground) bread and water. But nowadays a diet of white bread and water would kill a man in three weeks. This had also been proved to hold for rats and guinea-pigs. Similar experiments at Copenhagen showed that hard-working men could keep healthy for six months on a diet of wholemeal bread and margarine, but if fed on white bread and margarine they could scarcely walk after two weeks. Thirdly, the rise and development of every great civilisation was coincident with the intensive cultivation of wheat by the peoples concerned. From these facts it must be inferred either that white roller mill flour has a deleterious constituent added to it or that it is lacking in some necessary constituent of diet. Dr. Shelly then described in detail the process of grinding in stone mills and roller mills. In stone mills the whole berry was ground up together, forming wholemeal flour. Since this flour was said not to keep well, and since the bran was said to have an irritating action, the flour was then sifted through sieves of fine silk mesh, which retained almost all the bran and only very little of the germ. The product was called millstone flour and contained over 96 per cent. of the germ. Further sifting with finer sieves could be used to produce finer and whiter flours containing smaller percentages of the whole berry. The advantages of millstone flour were that it was a complete food sufficient in itself to maintain life; it was a cheap food, as although its cost was slightly greater than that of roller mill flour, bread made from it went farther as people ate less of it, and lastly it encouraged mastication, and was therefore of great value to children. In roller mills the germ was cut off the grain at the beginning of grinding and the bran removed by sifting. The germ and bran were sold as offal for pigs and cattle, and the white flour, deficient in proteins, phosphorus, and vitamins, was sold for human beings, often after bleaching by chlorine or hydrogen peroxide. Finally Dr. Shelly related some interesting experiments on the radio-activity of various samples of flour and bread as tested by photographic plates. Photographs were shown illustrating these experiments. He then concluded by emphasising the danger and unfairness of forcing children to take bread which did not contain the nourishment to which they were entitled.

Miss MAY YATES (Hon. Secretary, Bread and Food Reform League) pointed out that the question at issue was the percentage of the whole berry to be retained in flour, and not the type of mill in which the flour was ground. If the demand were sufficient modern roller mills could and would produce wholemeal or 80 per cent. household flour instead of white flour. It was therefore unwise to emphasise the terms stone-ground or roller-milled, and better to describe flour as wholemeal or 80 per cent. or white.

Dr. O. G. WARD described the process of roller mill grinding, and agreed that these mills could produce flour exactly equivalent in percentages to stone-ground flour.

Mr. J. A. GARDNER (St. George's Hospital) described nutritional tests on various flours made during the war. These showed that in digestibility and availability there was little difference between 80 and 90 per cent. flour. Such difference as was found was slightly to the disadvantage of 90 per cent. flour, which caused an increase of 50 per cent. in the dry weight of the stools of patients over that obtained with bread from 80 per cent. flour. This was on a diet of which bread formed 50 per cent. of the whole. Tests of the health of munition workers eating bread made from various flours for two months showed that 90 per cent. flour certainly did no harm to men, women, or children, even when their diet consisted largely of bread; and a few of the workers showed great improvement in health owing to the cure of chronic diarrhœa or constipation. After the test was discontinued the workers sent up a demand for the continued use of 90 per cent. flour.

Sir HARRY BALDWIN said that from the dental point of view he agreed with previous speakers, except that he considered avitaminosis was responsible for a great deal of the general ill-health now prevalent. A striking fact was the deformity and poor development of jaws and teeth, which had become widespread among civilised people in very recent times. He considered this partly due to avitaminosis in early life, and suggested that the prevalence of adenoids might be due to the same cause. Dental caries, while partly due to defective development, was largely due to local adhesion of sticky carbohydrate food to the teeth and gums, and subsequent lactic fermentation. In this respect fine white bread was undoubtedly worse than stone-milled bread. He himself used only stone-ground and wholemeal flour, and considered it most important that people should not be deprived of valuable constituents of diet in order to pander to a vitiated taste.

Dr. G. E. FRIEND (Christ's Hospital) said that for the last 22 years the boys at Christ's Hospital School had been given stone-milled bread made from 76 to 80 per cent. flour. In the last two years some bread from 90 per cent. flour had been introduced. This was popular if taken occasionally, but was disliked if provided as the sole norm of bread. Dental caries—as shown by annual inspection—had declined from an average of four teeth per boy per year before the stone-ground flour was used, to about 1·7 teeth per boy per year at the present time. While not suggesting that this improvement was entirely due to the change of bread, the speaker did consider 80 per cent. bread of great value for the teeth, especially because it ensured proper mastication. Further advantages of such bread were increased oral cleanliness from its roughness, and a reduced tendency to constipation. Dr. Friend finally emphasised the importance of pressing for improvement in quality of the bread for the people.

Mr. CARTER gave his experience as a baker, and explained that most people would not buy wholemeal loaves but demanded white bread. If there was a demand for wholemeal bread bakers would be quite ready to make it.

After some further discussion the PRESIDENT concluded by saying that the general opinion of the meeting appeared to be in favour of 80 per cent. stone-ground flour. He therefore proposed that the following resolution should be sent to the headmasters of public and private schools and to other

educational authorities as representing the opinion of one section of professional thought :—

"That whiteness of flour is not in itself necessarily an indication of its value as a food, but that natural germ-containing bread made from 80 per cent. flour tastes better and is more nutritious, particularly for growing children, and should be provided."

This resolution was seconded by Sir BRUCE BRUCE-PORTER and was carried unanimously.

An attractive exhibit was shown by Messrs. Prewett, of the Town Mills, Horsham, of wholemeal and millstone flours, and of biscuits, cakes, pastry, and bread made from them.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.

POST-GRADUATE COURSE.

(*Concluded from p. 774.*)

IN addition to the lectures reported in our columns last week, the following were also delivered at the St. Mary's Hospital Post-Graduate Course held on Oct. 4th, 5th, and 6th.

Diet and Disease.

Prof. B. J. Collingwood said that our knowledge of diet rested on two foundations, laboratory experiment and clinical experience. So far as definitions were of value, a correct diet might be defined as one that maintained the normal composition of the blood and lymph. To attain this end there were five equilibria which must be satisfied in addition to the all-important question of vitamins. The water equilibrium : This was the most essential of all the equilibria. A sufficiency of water was the first necessity of diet, upon such sufficiency vital processes were dependent. A hunger strike might last for weeks ; a thirst strike would end in a few days. The calorie equilibrium : The maintenance of weight was evidence that this equilibrium was being maintained. The nitrogenous equilibrium : The clinical evidence of the maintenance of this equilibrium was the absence of muscular wasting. The mineral equilibrium : This equilibrium could look after itself except in cases where abnormal diet conditions prevailed, as, for instance, in certain parts of Africa where sodium chloride was almost unobtainable. The acid-alkali equilibrium : This could be upset towards the acid side by a diet extremely rich in fat, and very deficient in carbohydrates and proteins.

To understand the principles underlying diet in diseases of the alimentary canal, it was necessary to utilise our knowledge of the functions of the stomach, the small intestine, and the large intestine. The stomach absorbed no food, unless one were to class alcohol amongst foods, and since a large proportion of alcohol consumed was oxidised in the body, alcohol was, in that sense, most certainly a food and a source of energy. The small intestine was the only portion of the alimentary canal which absorbed food to an appreciable extent. The large intestine absorbed practically nothing beyond water. Nutrient enemata only nourished the bacteria of the intestine. Minute amounts of amino-fatty acids might, indeed, be absorbed. As to carbohydrates, if a diabetic on a diet just within the limits of carbohydrate tolerance were given an enema containing a large amount of dextrose, none of that substance appeared in the urine. Carbohydrate, if absorbed, was absorbed only in small traces. The lecturer said that the application of these facts to diseases of the alimentary tract was the foundation of correct dietary. If, for instance, the food for any reason—e.g., pyloric stricture—could not reach the small intestine, we must utilise saline enemata, remembering that these could maintain the all-important water equilibrium but none other. (In a discussion after the paper, the possibility of utilising intra-peritoneal injections of dextrose was suggested.) If, on the other hand, the large intestine was diseased—e.g., dysentery—the diet should be such as would leave no residue of undigested food to pass through the ileo-cæcal valve. In diseases of metabolism such as diabetes and gout, the objects of dietary were to maintain the above equilibria with a minimum of such articles of diet as was inimical to the morbid condition—i.e., carbohydrates in diabetes and nucleo-proteins in gout. The treatment of the albuminuria of pregnancy by a purely water diet was an example of the fact that the body suffered little if the water equilibrium were maintained, although the calorie and nitrogen equilibria went entirely to the wall.

Surgical Treatment of Gastric Ulcer.

Prof. C. A. Pannett said that he believed gastric ulcer was a comparatively rare disease, although there were always cases of it to be found in hospital. The essential treatment of gastric ulcer, he said, was initially always medical and never surgical, but under medical treatment there were a certain number of cases which would not get well. The pathologist looked on gastric ulcers as true digestive ulcers. In the evolution of the condition there was a time when there was loss of resistance to digestion. The chief factor in the prevention of healing was held to be infection, and secondly, the irritating nature of gastric juice which formed thick fibrous tissue round the ulcer. This fibrosis rendered all tissues in the neighbourhood of the ulcer rigid. The important question from the surgeon's point of view was which type of ulcer would heal and which would not, and here the X ray was of inestimable service. If a burrowing ulcer surrounded with fibrosis were present the X ray picture showed on the taking of a barium meal a niche at the site of the ulcer, usually on the lesser curvature, and opposite to that there was sometimes a spastic notch in the greater curvature. Some observers abroad stated that they could diagnose successfully more than 90 per cent. of cases by these means, but the figures at St. Mary's Hospital were rather between 70 and 80 per cent. The diagnosis of ulcer on the posterior wall of the stomach was a more difficult matter, but the fixation of the organ gave a clue when the patient was in the erect posture. Where there was a definite niche, unless it was of extremely small size, Prof. Pannett said, it was impossible for natural healing to take place, and operative treatment was called for. Where no niche could be discovered and yet pain was a regular and recurrent symptom, then he considered operation should also be advised, since every ulcer cannot be visualised by X rays. The general pathology of duodenal ulcers was very similar to that of gastric ulcers, but duodenal ulcers were more likely to be multiple, and they were usually of smaller size when they came into the surgeon's hand. They could, on the whole, be induced to heal more readily, perhaps because they gave symptoms earlier. It was much more difficult to come to a positive conclusion by X rays because of the position of the duodenum behind the stomach and also because the duodenum filled for a time then collapsed ; therefore exposure must be timed when the duodenum was actually filled. The indications for operation in duodenal ulcer were, when medical treatment proved ineffective, and secondly, where a definite niche was seen on the skiagram. The operation Prof. Pannett advised for ulcer high on the lesser curvature was a sleeve resection. This gave excellent results. Billroth I. was performed when the ulcer was nearer the pylorus, but there was a revulsion nowadays, he said, against gastro-jejunostomy. This latter operation, however, was useful when the ulcer had healed and formed an obstruction. The occurrence of failures, even after successful operations, should be explained, he said, by the patients losing antipeptic power.

The Diagnosis of Acute Right Hypochondriac Pain.

Mr. Zachary Cope said that the right hypochondrium was packed with important viscera, all of which moved slightly with the excursion of the diaphragm ; these viscera were so closely related together that if a sword with a blade 2 inches broad were thrust with precision through the centre of the region it would injure eight important structures—to wit,

liver, gall-bladder, duodenum, pancreas, kidney, colon, the diaphragm, and the pleural cavity, not to mention the suprarenal. It was clear, therefore, that the problem of differentiation of the pains which took origin in this region was fraught with difficulty and was worthy of special attention. The first thing to be decided was whether the source of the pain was above or below the diaphragm. This was not always so easy as might appear at first sight. Both cardiac and pulmonary disease might give rise to acute pain in the right upper quadrant of the abdomen. With cardiac failure due to an anginal attack the liver might become acutely engorged and painful and vomiting sometimes occurred; such a condition might at first simulate an acute abdominal condition—even a perforated gastric ulcer. In differentiating the two conditions it was necessary to note the enlargement of the liver and of the right side of the heart, and to look carefully for venous pulsation in the neck. In both heart failure and perforated ulcer the pulse might be small and irregular at first, but in the abdominal condition the pulse generally became almost normal after the first shock of perforation was over. With diaphragmatic pleurisy and pleuro-pneumonia on the right side one might find an extremely close simulation of disease in the right hypochondrium—a simulation which must have at times baffled every practitioner of medicine and surgery. The lecturer then briefly explained how a distinction could always be made with certainty by contrasting the main symptoms. Of all the points of distinction he attached most importance to (1) the presence of fever at the beginning of a thoracic condition, (2) the previous history of indigestion or chill, and (3) the infrequency of vomiting in adult pleuritic conditions. There were some symptoms which were never due to thoracic disease—e.g., testicular pain, pain on moving the right psoas, and hyperæsthesia of the abdominal wall below the umbilicus. There was one symptom, not often present, which he had nearly always found due to thoracic disease—i.e., pain referred to the subclavicular fossa. Most of the symptoms, such as rigidity of the abdominal wall, increase of the respiration-rate, fine râles in the chest, absence of much air entry at the right base, could be found equally well in either group of cases, and in some cases it might be impossible by ordinary clinical examination to tell for sure whence the pain arose. In such cases it would not be justifiable to give a general anæsthetic and explore, but it was justifiable to give morphia and a local infiltration anæsthetic and make a small 1-inch incision into the right side of the abdomen. The presence of a serious condition might then be ascertained or excluded and the further treatment made plain.

Of the affections of the viscera in the right hypochondrium one must consider biliary colic, cholecystitis, perforated or leaking duodenal ulcer, and infection of the kidney. With *biliary colic* there was often some premonitory uneasiness before the acute pain started; the pain sometimes was felt right across the upper abdomen and usually went through to the right subscapular region. It was not felt on the top of the shoulder unless there were in addition some local peritonitis irritating the diaphragm. The abdominal wall was not usually rigid. With *cholecystitis*, which extended through to the peritoneal coat, there was local rigidity of the abdominal wall, tenderness on pressure, and sometimes pain in the right supraspinous fossa. Jaundice was exceptional and slight. Fever was present. With an *acutely perforated ulcer* of the duodenum there was not, as a rule, much difficulty in diagnosis; the history of acute indigestion, sudden onset of pain, collapse, and the local signs in the abdomen were usually clear. Pain in the right supraspinous fossa was common. With a leaking ulcer of the anterior wall only the history might enable to distinguish from cholecystitis. With a *leaking ulcer of the posterior wall* the difficulty in diagnosis might be very great. The proximity of the renal pelvis to the back of the duodenum caused renal symptoms and tenderness at the right erector-costal angle. In such cases it was easy to take the condition for an infection of the kidney. The history was the most important factor in determining, and the exact mode of onset was always to be ascertained. *Infection of the kidney* was often preceded by a rigor, and there was usually fever of 102° or 103° F. Tenderness at the right erector-costal angle was very definite, and there were usually urinary symptoms at the onset. Afterwards the ureter might become closed and a tender renal swelling develop. With a *perinephric abscess* the onset was less acute and was often preceded by the occurrence of boils or of a whitlow. Fever was not high—about 100°—and there were usually no urinary symptoms except tenderness at the erector-costal angle.

The Investigation of a Case of Puerperal Fever.

Mr. Aleck Bourne said that it was important to distinguish between fever of non-puerperal origin, local uterine infection, blood infection, and a local extra-uterine lesion such as a pelvic abscess. Considerable assistance might be obtained by noting the time of onset of pyrexia in relation to the delivery. Thus fever of the first four days was likely to be of uterine origin, with or without extension of infection into the blood-stream, while at a later date it was more likely to be due to a local lesion such as thrombophlebitis, cellulitis, or salpingitis. It should always be remembered, however, that a urinary or mammary infection might cause high temperatures at any stage of the puerperium. The exploration of the uterine cavity should only be carried out when it was possible to remove something, and the only thing that could be satisfactorily removed, or needed removal, was a placental fragment. Membrane and clot would disintegrate and come away spontaneously, but placenta certainly required digital removal in most cases. The diagnosis of whether placenta was retained, and therefore the indication for exploration of the uterus, was the occurrence of hæmorrhage during the puerperium, especially if it occurred in gushes, and was repeated. Mr. Bourne said that bacteriological examination of the urine was essential in all but the most obvious cases of infection elsewhere, as bacilluria was so frequently a cause of puerperal fever. A culture from the cervical canal and even from the blood was useful for purposes of prognosis, and for making a vaccine should it be desired to institute vaccine treatment. In all cases a complete examination of the patient should be made, including careful inspection of a perineal laceration.

Dr. J. B. McDougall took as his subject

Some Practical Points in the Diagnosis and Treatment of Pulmonary Tuberculosis.

The lecturer referred in some detail to the work of Pottenger, of America, and discussed the influence of parenchymatous changes in the lung tissue with special reference to the effects which these have on the skin, subcutaneous tissues, and muscles. He traced the path of the reflexes usually found and instanced the great value which these surface changes had in diagnosis of acute exacerbations of pulmonary disease and in the diagnosis of chronic lesions. Muscular spasm or tension was an invariable accompaniment of acute parenchymatous disease, and atrophy of the skin, subcutaneous tissue, and muscles was to be seen in the more chronic forms of chest disease. He pointed out that the pathological changes in the soft tissues were for the greater part based on reflex motor and trophic disturbances which are a result of acute and chronic changes within the lung, the most common cause being pulmonary tuberculosis. The lecturer then dealt with percussion, and pointed out the great difficulty physicians had in giving practical application to the terms "light weight" and "heavy" percussion. He considered the purely muscular aspect of the question and recommended that percussion be divided into three species. The first species included the percussion stroke in which the finger alone is used, extension and flexion occurring at the metacarpophalangeal joint; the second species was that

in which the hand and finger may be moved together, but at different rates, and the third species that in which the forearm may be used along with the hand and finger, flexion and extension taking place at the elbow, wrist, and metacarpophalangeal joints. At all times it was best to begin with the first species and "feel" for resonance. If the first species failed to elicit resonance then the second species might be employed, but not till the first species had failed. It was only rarely necessary to use the third species. If the second or third species were used before the first then there was a grave danger that areas of impaired resonance would be overlooked, inasmuch as the louder notes produced by the heavier varieties would set in vibration healthy lung tissue adjacent to diseased patches. It required the lightest possible percussion stroke to determine small areas of tuberculous infiltration, and he strongly recommended that the first species of percussion be employed in every case until it had failed to produce resonance. The lecturer then quoted some observations which he had made on the total leucocyte count in cases of pulmonary tuberculosis, and expressed the opinion that consecutive white-cell counts gave frequently reliable information as to the presence of active disease. He considered the possible causes of the phenomenon of the "leucocyte swing," and thought that they might be produced by a process of negative chemiotaxis. There was no evidence that they were associated in any way with anaphylactic phenomena. In conclusion, the artificial pneumothorax apparatus of de Carle Woodcock was demonstrated, and its use in cases of partial or selective collapse was mentioned. The lecturer also detailed one or two cases in which he had been successful in treating cases of spontaneous pneumothorax by aspiration of gas under manometric observation, aiming always at keeping the intrathoracic pressure above that of the atmosphere.

Reviews and Notices of Books.

CHEMISTRY OF THE BLOOD IN CLINICAL MEDICINE.

By O. L. V. DE WESSELOW, M.B., F.R.C.P., Chemical Pathologist, and Physician to Outpatients to St. Thomas's Hospital. London: Ernest Benn, Ltd. 1924. Pp. 255. 15*s*.

IN his preface Dr. de Wesselow announces his intention "to describe concisely those aspects of the subject which are of interest to the clinician," and in the twelve chapters contained in this book the attention of physicians and surgeons is directed especially to the clinical applications of blood analysis. The first chapter deals exclusively with the composition of normal blood; the next three, comprising about half the book, treat respectively the subjects of acidosis and alkalosis, the blood-sugar, and nephritis. Chapter V. is devoted to blood-findings in tetany, whilst the remainder contain accounts of rickets, gout, fats and lipoids, hydræmia and anhydræmia, anoxæmia, miscellanea, and, finally, methods.

In the chapter on normal blood, the constituents, such as urea, non-protein nitrogen, &c., are considered, and their normal concentration and significance in the blood are discussed. Although we agree with the author that highly technical discussions would be out of place in his book, we feel that he has rather neglected an opportunity here in not briefly describing the normal metabolism. This section gives rather a static conception of the blood constituents, whereas the true one must certainly be dynamic. Thus there is no account of the interrelations between the urea, amino-acid, ammonia, and non-protein nitrogen content of the blood, and the description of each constituent is isolated, whereas a brief account of metabolism would draw the subject together. It is doubtful if any reader who has not made a study of modern chemistry could follow the description of the meaning of pH; and the acid-base equilibrium of blood is rather sketchily described. Apart from the fact that the physiological conditions are dealt with in rather a hurried manner, the chapter devoted to acidosis and alkalosis, which consists mainly of a summary of the literature, is very good indeed. The author has described the clinical applications of blood analysis to these conditions in a very full and complete manner. In Chapter III. the explanations of the rise in blood-sugar content following the intake of glucose would not find favour with several authorities upon this problem. For instance, the work of P. J. Cammidge and of K. M. Hansen is not mentioned at all, nor is there any reference to that of certain American observers who used very large doses of glucose. The clinical importance of the blood-sugar content is admirably described, and many little known but important phenomena are given. Thus the author calls attention to the lowered leak-point in early diabetes mellitus, when it is quite common to find sugar in the urine with a normal blood-sugar content. This almost unknown fact is of the greatest importance when one considers the number of physicians using the sugar content of the urine as their only means of regulating insulin dosage. The fourth chapter, on nephritis, consists of a summary of those views for which St. Thomas's Hospital Medical School has become famous. This section deals very fully with the significance of nitrogen and salt retention in the blood, and is obviously written by one who has had wide experience in this type of work. Nearly two pages are allotted to Ambard's coefficient, which is condemned, while relatively few lines are devoted to Addis's ratio, though it is stated that such a procedure "is the only method by which a defect in the amount of renal tissue present could be detected." For details of this method the reader is referred to the original paper, but many would be glad to have them set out here. No mention of A. Epstein's work is to be found in this chapter. The final chapter on methods is a little disappointing, inasmuch as only for a very limited number of the constituents dealt with in the preceding chapters is the method of estimation described, and different techniques for each are given. The disadvantage lies in the fact that for blood urea 3 c.cm. of blood are used, for non-protein nitrogen 3 c.cm. of blood are precipitated with trichloracetic acid, for creatinin 5 c.cm. of blood are precipitated with picric acid, and so on. By the methods recommended, at least 20 c.cm. of blood would be required for the estimation of urea, non-protein nitrogen, sugar, creatinin, and chlorides. Moreover, the blood proteins have to be precipitated separately for each estimation. We would suggest that Folin's system of blood analysis is preferable, where one protein-free filtrate can be used for all the above estimations, which, with several additional constituents, such as amino-acid and nitrogen, can be performed on 6 to 10 c.cm. of blood.

The volume deserves a warm welcome, since it is the first to appear on this subject by an English author. That Dr. de Wesselow is one of the most competent of his countrymen to write such a book cannot be doubted, and as a clinical work its value is very great. An excellent series of references is given; in a future edition, which is sure to be called for, they might with advantage be numbered in the text.

RENAL DISEASE.

Modern Methods in the Diagnosis and Treatment of Renal Disease. Second edition. By HUGH MACLEAN, M.D., D.Sc., Professor of Medicine and Director of Medical Unit, St. Thomas's Hospital. London: Constable and Co., Ltd. 1924. Pp. 110. 12*s*.

SINCE the first edition of this monograph is so well known it is unnecessary to enumerate its contents; the second edition differs only in detail from the first. Drawings representing the microscopic appearance of certain renal lesions have been included, and the

chapter dealing with the value of blood analysis has been considerably expanded.

As before, the introductory chapter, dealing with the theories of renal secretion, is clearly written, and, it must frankly be said, far superior to that found in the majority of physiological text-books. It is one of the few brief and lucid accounts of this difficult subject in the English language. The succeeding chapters describe the symptoms and signs, investigation and treatment of renal diseases. Records of a series of typical cases are included with valuable comments. To one or two statements exception might be taken. Thus, the author says that the estimation of non-protein nitrogen "is a somewhat lengthy and difficult process, necessitating care and some technical skill if the results are to be depended upon," and that "quite as much information is to be derived from the much simpler process of estimating the urea present." But surely nothing could be simpler than the estimation of non-protein nitrogen by Folin's method, whilst many authorities hold that the non-protein nitrogen content is a safer criterion than the blood-urea. Again, on p. 64, Prof. MacLean, speaking of the diastase test, says, "It is easy to carry out and very helpful as a rule in conjunction with the urea test." On the next page but one, however, he adds, "Personally, I attach very little importance to this test." The importance of allowing for the acidity and salt concentration of the urine in the estimation of diastase has been emphasised by many workers; the technique here described takes no account of these complications.

One factor at least which must have contributed very largely to the success of the volume is that the purely clinical observations, such as blood pressure, have not been lost sight of. The well-balanced chemical and clinical opinions make the monograph of the utmost value to all concerned with nephritis.

1700 MILES IN OPEN BOATS.

By CECIL FOSTER, Master Mariner, Captain of the s.s. *Trevessa*. London: Martin Hopkinson and Co. 1924. Pp. 173. 10*s*. 6*d*.

MANY of us have seen at Wembley, in the Ceylon court, the battered ship's boat in which Captain Cecil Foster, without chart, compass, or chronometer, sailed 20 men of the sunk *Trevessa* 70 miles a day for 23 days from the middle of the Indian Ocean to the north end of Rodriguez Island, only six miles from north to south, a wonderful landfall. But even more marvellous was it that, on the passage, in spite of severely restricted rations, he only lost two out of his 20 men. The total ration expenditure was 50 lb. of biscuit, 100 tins of milk, and 8 gallons of water, from which the average daily expenditure seems to have been 1¾ oz. of biscuit (at 8 A.M.); ¼ tin of milk (issued as a cigarette-tin lid-full at 8, noon, and 4); and 2¾ oz. of water (at 2 P.M.). The other boat under the chief officer sailed 200 miles farther in three days more, and reached Mauritius. What risks, even in these days, insistently dog seamen! How quickly a dangerous situation may develop at sea! On Sunday, June 3rd, 1923, *Trevessa*, of 3000 tons and 10 knots, was lying-to in heavy weather; at 10.30 P.M. the outlook for next day seemed more hopeful, and the situation caused no anxiety. At midnight M. Scully, A.B., came up on the bridge and reported he could hear water washing about in the forehold under the forecastle. On deck nothing appeared to be wrong, but the captain and the chief engineer went down to the forecastle, and, laying their ears to the deck, heard, above the noise of the storm, water swishing about below them. The ship was sinking, like the *Titanic*, by the head on an even keel. At 1 A.M. the captain gave the order to abandon ship, and at 2.15, though in a gale, the two boats, by very fine seamanship, were got away safely, with every man in them and with extra water, biscuits, and milk. At 2.45 the ship sank by the head. Luckily for the crew, Captain Foster was not without special boat experience. Torpedoed twice in one day in the war, he had had to sail 320 miles in an open boat in the North Atlantic, and he was now to prove a regular foster-father to his men. On the first day he gave them a biscuit but no other ration, no water; they could that day do without. Also he got all food arranged so it could not be secretly pilfered. Their difficulty was water, but they had rain they could catch on nine of their 23 days, and their methods for catching it (illustrated in the book) were most ingenious. Very soon their mouths became dry and slimy. Often they could not eat the biscuits, but, after chewing them, could blow them out of their mouths as dust. The milk was their greatest support, and that is why, no doubt, the Board of Trade has arranged that, from July, 1925, all ships' boats shall always have in them, in addition to the 1 quart of water and 2 lb. of biscuit per man already ordered, 1 lb. of condensed milk for each person who might be carried in emergency. Their water ration was treasured to the last drop; indeed, had they not been able on two or three days to catch as much water as they wanted from rain, they could not have lasted out. Captain Foster also made them sniff seawater up their noses, not swallowing any, and keep their heads and necks wet, which relieved thirst a little, and he also made them rub their feet when they swelled. The crowding in the boat and the boat's constant rapid oscillation were persistent hardships.

A simple, direct record of hardships stoutly faced, this book will be read by many, and given to boys at Christmas, it will surely send some of them to sea, while all its readers will feel that Captain Foster, Chief Officer J. C. S. Smith, and their companions, well deserved the reception and honours given them on their arrival home. A story reflecting greater credit on the seamanship, knowledge of navigation, thoughtfulness for his crew, and power of command of the captain of a ship, and of good discipline and good humour in a crew in difficulties, has rarely been told; and never more modestly. It should be in every ship's library. The book is well printed, illustrated, and indexed.

PRACTICAL DENTAL HISTOLOGY AND BACTERIOLOGY.

By H. C. MALLESON, L.R.C.P., M.R.C.S., L.D.S., and A. BULLEID, L.R.C.P., M.R.C.S., L.D.S., Assistant Dental Surgeons, Guy's Hospital. London: John Bale, Sons and Danielsson, Ltd. 1924. Pp. 72. 7*s*. 6*d*.

THIS is an admirable and practical book which fills worthily a gap in dental literature. The instructions are clear and concise, and should prove very useful to the dental student. Dental histology is admittedly a difficult branch of general histology, and calls for skilled technique owing to the fact that so many preparations consist of hard and soft tissues together. It cannot be expected that the dental student can become in any degree proficient in histological technique. He must, as Mr. Norman Bennet states in his introduction, be dependent on others to a considerable extent, but it is desirable that he should be familiar with the special methods employed in dental histology were it only that here and there a student may become sufficiently interested to take up this work and carry on the great traditions of the dental histologists of the past. The section on dental bacteriology, for which Mr. Bulleid is responsible, presents a more difficult task than that on dental histology. In no sense can dental bacteriology be called a special branch of general bacteriology, and if this section is less satisfactory, the fault lies with the subject itself rather than the author. As a guide to a practical course of laboratory work it would prove useful, but, unfortunately, no such course is compulsory at present for the dental student. Yet even in the absence of such a course the student should learn some useful knowledge from the notes on practical dental bacteriology. The book is well illustrated and the price is moderate. A few blank pages on which the student could make notes of methods not mentioned here would prove a useful addition in succeeding editions.

DIGESTIVE DISORDERS.

The Treatment of the Common Disorders of Digestion. By JOHN L. KANTOR, Ph.D., M.D., Chief in Gastro-intestinal Diseases, Vanderbilt Clinic, Columbia University; Associate Gastro-enterologist and Associate Roentgenologist, Montefiore Hospital for Chronic Diseases, New York City. London: Henry Kimpton. 1924. Pp. 245. 24*s*.

THIS beautifully illustrated volume discusses in 15 chapters the treatment of various disorders of the alimentary tract; we say "various" because the scope of the work is general rather than particular, and it would be easy to enumerate a long series of conditions of relatively frequent occurrence, which are not mentioned. This is at once the strength and the weakness of the volume, for it stresses the management of many common disorders and perhaps tends to encourage hasty diagnosis which may prevent effectual treatment. Some of the author's views, particularly those which he gives on achylia gastrica, are not in accordance with accepted teaching, nor are they, we believe, sufficiently supported by facts to justify the departure. The real value of the book lies in the illustrations, which are well chosen and beautifully reproduced.

Essays and Addresses on Digestive and Nervous Diseases and on Addison's Anæmia and Asthma. By ARTHUR F. HURST, M.A., M.D. Oxf., F.R.C.P., Physician, Neurologist, and Director of Advanced Studies, Guy's Hospital. London: William Heinemann (Medical Books), Ltd. 1924. Pp. 306. 21*s*.

WE welcome this volume of collected essays by Dr. A. F. Hurst. Its contents have in many instances appeared in the pages of this and other medical journals, and the author in his preface states that his object in republishing these papers is to express his present views on subjects where the advance of knowledge makes final judgment impossible. The field covered is a wide one—asthma, Addisonian anæmia, diseases of the stomach, gall-bladder, and appendix, and the hysterical element in organic disease being the chief subjects. In every case Dr. Hurst treats his subject with lucid and original intelligence, and there is no surgeon or physician in the country who will not read this volume with profit and, we believe, with interest.

SOME GERMAN WORKS ON TUBERCULOSIS.

Diagnostik und Therapie der Lungen- und Kehlkopftuberkulose. By Dr. H. ULRICI, Aerztl. Direktor des Städt. Tuberkulosekrankenhauses, Waldhaus, Charlottenburg, Sommerfeld (Osthavelland). Berlin: Julius Springer. 1924. With 99 illustrations, some coloured. Pp. 263.

THIS beautifully illustrated work is well suited to readers anxious to learn the latest and most important advances in the diagnosis and treatment of tuberculosis of the lungs and larynx. As one illustration shows, a binocular instrument is now available which enables three persons to see the same laryngeal picture at once. Of the value of this device, both to the student and the patient, there can be no question. Other modern procedures, of which the author gives a full and illustrated account, are thoracoscopy with cauterisation of pleural adhesions, and the Fahraeus test—the rate of sedimentation of the erythrocytes. The chapter on the specific and non-specific treatment of tuberculosis with such substances as tuberculin and non-specific proteins is short; the author has felt constrained to mention such methods as those associated with the names of Ponndorf and Petruschky, but he takes his revenge by subjecting them to a blighting criticism. With regard to the classification of pulmonary tuberculosis, it is worth noting that German authors, like Dr. Ulrici, generally adhere to the Aschoff school, distinguishing from the point of view of diagnosis and prognosis between the "productive" and the "exudative" forms of the disease. Dr. Ulrici adds a third form, "cirrhotic" phthisis, which possesses certain clinical characteristics of distinctive importance. This classification differs considerably from the one in vogue in this country, where students are taught to distinguish between broncho-pneumonic, pneumonic, fibro-caseous, fibroid, and pleural types. Dr. Ulrici's book deserves popularity; it is not too elementary for the specialist, nor too erudite for the general practitioner.

Die Behandlung der Kindlichen Lungentuberkulose mit dem Künstlichen Lungen-Pneumothorax. By Dr. HELENE ELIASBERG and Dr. PHILLIPP CAHN. Berlin: S. Karger. 1924. Pp. 54.

THIS is a very instructive little monograph, dealing with the artificial pneumothorax treatment of 125 children whose ages ranged from 4 months to 14 years. It used to be thought risky to collapse part of one lung in a child, but the authors have induced a partial pneumothorax in some of their cases on both sides simultaneously. Their material is hardly suitable for estimating the value of this treatment because it has been considerably modified from time to time, and the class of case selected for it has also greatly changed. Thus, in the period 1914–16 this treatment was almost exclusively reserved for cases of pulmonary tuberculosis with cavities, and it was seldom that the pneumothorax was maintained for more than half a year. With increasing experience the authors have extended their indications for this treatment to many cases of "closed" hilus tuberculosis, and have maintained the collapse of the lung for two or three years or even longer. Their results have, of course, improved greatly in consequence of these changes, but it is doubtful if lung collapse treatment for closed hilus tuberculosis in childhood will ever be extensively adopted; the procedure savours too much of rushing to the aid of the victor, of giving aid where it is hardly needed. There were, however, as many as 50 sputum-positive cases in this series, and 13 of the patients are still alive. But only six of these 13 were rendered sputum-negative and free from cough and fever. Considering how bad the prognosis is for sputum-positive tuberculosis in childhood, a recovery-rate of 12 per cent. is not to be despised.

Die Klinik der Beginnenden Tuberkulose Erwachsener. Vol. II., *Der Formenkreis der Tuberkulose.* By Prof. WILHELM NEUMANN, Privatdozent an der Universität Wien. Vienna: Julius Springer. 1924. Pp. 265.

THIS is a work with neither a table of contents at the beginning nor an index of contents at the end; so the reader must needs plunge into the work itself before he can get a bird's-eye view of the whole. But he will be repaid for his plunge. There is, indeed, very little about the treatment of early tuberculosis in adults, and for this reason the book has a good chance of still being up to date a score of years hence, which is more than can be prophesied for most books on tuberculosis. Great care and much space are devoted to the classification of the numerous manifestations of infection with the tubercle bacillus, the basis of the classifications being rather pathological and anatomical than clinical. Useful hints are given with regard to the simulation of rheumatism, neurasthenia, and various other complaints by early tuberculosis, and with regard to neurasthenia, in particular, it would be well if the apostles of psychoanalysis and treatment by suggestion would bear in mind that the neurasthenic is often the product of a drawn battle between the tubercle bacillus and the human tissues. Undoubtedly, this is a book crammed with much useful information by one who has been able to draw on a carefully studied and well-digested material.

THE LANCET.

LONDON: SATURDAY, OCTOBER 18, 1924.

A HOSPITAL CLEARING HOUSE.

LAST April the Minister of Health requested the Voluntary Hospitals Commission to inquire into and to report upon the extent of the additional voluntary hospital accommodation required in England and Wales and the best means of providing and maintaining it. In his foreword to the Red Cross report [1] on voluntary hospitals, which we briefly noticed a week ago, Sir ARTHUR STANLEY suggests that this reference to the Hospitals Commission should be extended. He would like inquiry to be made into the general need of hospital accommodation, the special categories in which the need of further accommodation is felt, and the possibility of supplying that accommodation, in part at all events, by better coördination and coöperation. And in this demand for a wider inquiry Sir ARTHUR STANLEY has the support of the British Hospitals Association. Dr. F. N. KAY MENZIES, who wrote the Red Cross report, deprecates the slightly apologetic attitude which the voluntary hospital system has adopted during a recent time of financial stress, and claims that the immense volume of work for which the voluntary system makes itself responsible is carried out more efficiently and more economically than it could be by any other known method or system. But at the same time he is keenly aware of the urgent need for extension of hospital facilities in certain directions, and it is not the voluntary hospitals alone which are concerned. As he pointed out to the annual meeting of the Hospitals Association last summer, at least four-fifths of the treatment available for the sick in the London area is already provided for out of rates and taxes, and it is easy to understand, although none the less to be regretted, how faulty has been the coöperation between voluntary hospitals and the developing municipal services. When, in 1909, the Education Administrative Provisions Act resulted in the gradual introduction of a medical service into public elementary schools, the growth of this service was so rapid that in a short time the number of London school-children examined ran up to more than 250,000 per school year. It could have been foreseen that medical examination was bound to be followed by demand for treatment, when steps might have been taken to forestall the flooding of the out-patient departments of voluntary hospitals with school-children suffering from various ailments to a degree which was little short of a public scandal.

The school medical service was, however, only the forerunner of a series of other medical services to be undertaken by local authorities, and now quite apart from the fever hospitals and mental hospitals the municipality of London has undertaken to deal with tuberculosis in 2400 beds and 33 dispensaries, with venereal diseases in 28 clinics, with maternity and child welfare at 220 centres, and to remunerate medical practitioners called in under the Midwives Act. These services are certain to expand still further in certain directions, such as the safeguarding of maternity, the care of infantile paralysis, and of the various manifestations of rheumatism in children. And it will need the collaboration of all the hospital authorities of the country to ensure that the expansion is well and truly engineered. It would be entirely unfair for the Hospitals Commission to find that such and such a voluntary hospital is failing to do its duty to the sick in any area until it has been definitely established whether the public authorities in that area are doing their duty to those for whom they are legally responsible. This cannot be determined without a comprehensive survey of existing facilities for the treatment of the sick, whether in voluntary or public institutions. Careful inquiry is needed in each county area as to the extent of all the facilities available for the treatment of the sick and the extent to which they are utilised. Dr. MENZIES outlines the scope of such a survey thus:—

1. Each county area will have to be carefully investigated in order to ascertain not only the exact amount of institutional accommodation for the sick (Voluntary, Poor Law and Public Health), but also all other facilities for diagnosis and treatment such as Dispensaries, Maternity and Child Welfare Centres, Clinics, &c.

2. Having ascertained this information, then it will be necessary to classify it into the various categories—Surgical, Medical, Special Departments, Mental, Fever, Chronic Diseases, &c.

3. The next step would be to ascertain from Medical Officers of Health, Medical Practitioners, Clergy and Ministry, and Social Welfare workers, as well, of course, as the Hospitals themselves, in what respects their experience proves there is a real deficiency.

4. Then, with a full and complete knowledge of the facilities available and the deficiences found by experience, it would be wise to consider how far known needs could be met by re-arrangement of existing facilities—how far additional Auxiliary Hospitals, Recovery Homes, and Convalescent Homes could meet the need by relieving the larger and more expensive Hospitals of cases now dealt with—how far Public Health Authorities could relieve Voluntary Hospitals of cases of Tuberculosis, &c.

5. Lastly, how far, after such re-arrangement, a real need existed for additional Hospital accommodation, whether Voluntary, Poor Law, or Public Health. It would not necessarily mean any additional Voluntary Hospital accommodation in every area.

This would mean a searching survey, but only after it has been made shall we know what gaps are left unfilled by either voluntary or public authorities. The need for a central bureau of hospital information becomes more apparent every year. Such a bureau should be available both for voluntary and public hospitals, and if properly run it would prove a trustworthy source of information on the countless difficulties which arise in hospital administration. A hospital committee may need information on technical points of architecture and engineering, on the supply and preparation of drugs, on the methods and success of contributory schemes, down to the comparative cost of various methods of cooking and the best process of laundering, and so forth. Any hospital secretary who wants information on any of these points at the present moment has to set about it in a laborious and cumbersome fashion by writing to some other hospital of which he chances to know the secretary or a member of the committee. It seems tragic that the vast practical experience of hundreds of hospitals should not be concentrated and tabulated at some central spot where it would be easily accessible and in charge of skilled administrators. The hospital world owes a deep debt of gratitude to the late Sir NAPIER BURNETT, who made the first survey for the Red Cross of the extra-London hospitals. Dr. MENZIES brings to the same task an intimate knowledge of municipal work, and we trust that the hospitals will avail themselves to the full of his administrative ability.

[1] The Voluntary Hospitals in Great Britain (excluding London). Fifth Annual Report for the Year 1923. Joint Red Cross Council, 19, Berkeley-street, London, W. 1s.

PHARMACEUTICAL EDUCATION.

THE opening of the eighty-third session of the School of Pharmacy comes as a reminder of the special place this venerable institution occupies in our educational scheme. In our time the founding of a new school is no uncommon thing, but in estimating the credit due to the founders of the School of Pharmacy we must consider the surroundings in which they lived and picture ourselves breathing the atmosphere which they breathed. In those days technical schools were unknown, and popular education was little more than a reformer's ideal. It required, therefore, both imagination and foresight to contemplate a school for specialised teaching and no small amount of courage to establish it. Thus it is seen that the founders of the school were men whose memories should be held in respect; whose proper ambitions should be handed down from one generation of students to another, as a basic tradition upon which to build from time to time other traditions equally inspiring. The founders were far-sighted pioneers; they saw, long before the leaders in many another class, that the day would come when the multiplication of the sources of knowledge would make it impossible for one man to become a universal genius or even supreme in one whole art; when specialisation would be essential to class or even personal distinction. In his address at the opening of the session, Mr. F. PILKINGTON SARGEANT, President of the Pharmaceutical Society, reminded the students that the need of such a school was one of the main reasons for the formation of the Society. It was seen by those who founded it that the most effectual method which any class of men could adopt for advancing their professional standing consisted in "a steady and persevering attention to intellectual improvement." Upon a groundwork of general knowledge, in assembling which the student learns the most important of all arts—the art of learning—they recognised that there must be erected a special structure of knowledge of those subjects which are allied to the practice of pharmacy. The Society was formed in 1841, and within a few months the school was opened and four men whose names are still familiar to students of botany, materia medica, chemistry, and pharmacy were appointed as professors. The laboratories which were equipped in the school 80 years ago were adopted as a pattern from which the Birkbeck laboratory was afterwards fitted up in University College; and the mantle of PEREIRA has fallen on a brilliant succession of teachers. It would be a lamentable thing if ever the Society, in search of economies, should make a beginning in its educational expenditure. We do not underestimate the value of organisation, but education is necessary if the organiser is to get material worthy of his scheme. As a mere trade union the Pharmaceutical Society could never have attained its present standing, which is in fact a direct consequence of its recognition of the value of education. Now, Mr. SARGEANT, quoting from the second Philippic, "Cui bono fuerit?" gave this answer from HERBERT SPENCER: "To prepare us for *complete* living is the function which education has to discharge." That, indeed, is the function of education, but when one looks at the windows and show-cases of the modern chemist's shop one is not inspired to quote either CICERO or HERBERT SPENCER. On the contrary, we believe there is a considerable section of pharmacists who ask who stands to gain and almost despair of an answer; who understand by specialisation the probing of one corner of the vast field of knowledge rather than the merchanting of toilet specialities. It is to these men that pharmacy looks for something more distinctive in the way of an outward sign of latent capabilities; in short, for a divorce of pharmacy proper from the thousand and one gew-gaws of which DIOGENES hath no need. Specialisation in production is not sufficient; there must be specialisation in practice, and we understand that a silent reformation is going on which in due time will result in two distinct kinds of practitioners, one of which will be the proper hand-maid of medicine. There can be no doubt which of the two types will be most welcome to the medical profession.

THE PSYCHOPATHOLOGY OF ACCIDENTS.

AT the Conference of Industrial Welfare Workers, reported in THE LANCET of Oct. 4th, a discussion on the psychological and physiological aspects of accident prevention brought forward the suggestion that the state of mind of the person to whom or through whom an accident happened should be a matter for investigation. Dr. MILLAIS CULPIN, who opened the discussion, described several cases in which a pathological mental state, of the nature of a psychoneurosis, seemed to be a determining factor in the production of what had seemed to be straightforward "accidents." In these cases the people concerned were under treatment when the factors underlying the accidents—which had all happened long before—chanced to come to light. Mention was also made of a recent instance in which psychopathological factors were admittedly present and formed the subject of official investigation. On Feb. 23rd last, through the default of a signalman, a head-on collision took place near Stoke Works Junction on the London Midland and Scottish Railway between an express passenger train and a freight train. An inquiry into the accident was conducted for the Ministry of Transport by Lieut.-Colonel A. H. L. MOUNT, who paid special attention to the psychological aspects of the events which led up to it. From a report of this inquiry, which appeared in the *Manchester Guardian* of Sept. 20th, it appears that there had been handed to the signalman, when he went on duty on the night of the accident, a form charging him with insubordination and conduct unfitting him to be a signalman, and the man declared that this was the cause of the accident, inasmuch as it weighed so seriously on his mind that it had rendered him unfit for duty. Full consideration was given to this plea and the report, though deciding that the signalman could not avoid responsibility, chiefly on the ground that his deliberate decision not to ask for relief indicated an unjustifiable disregard for public safety, yet points out the error of judgment involved in handing the charge form to him when going on duty, and expresses the opinion that the human aspect of the case was overlooked in favour of the machinery of administration. Thanks to the careful and complete statement of the findings at the inquiry, the psychopathologist is able to read between the lines and at least feel that he might offer explanations of some doubtful points. The man, for example, claimed to have "mechanically" carried on his duties for an hour before the accident and to be unable to account for his actions during that period. As far as his recollection went he had been assisted by someone during that time, and for this false idea there is offered a theory of "truthful imagination" or the alternative of pure invention. To one familiar with states of dissociation it seems possible to place the incident in the category of fugue phenomena, and to that extent aid in the understanding of it. Such an explanation might make no difference in the final judgment, so far as the fixing of responsibility is concerned, but expert investigation of the most important element in the accident—the mental state of the agent—might have added greatly to the value and utility of the inquiry. A further development is invited by the description of the signalman as "a man of peculiar disposition

and somewhat abnormal temperament," and by references which indicated that, like so many psychoneurotics, he was labouring under a sense of past and present injustice. It may be taken for granted that his physical fitness had been determined by careful examination, that his eyesight was adequate, that his heart and lungs were sound, and that he possessed no bodily defect that might become a source of danger in his work. But we have not yet reached the stage of making a psychological examination of a man's fitness for undertaking responsibility for the safety of other people. Indeed, we must confess that a medical man called upon to make such an examination might find very little in his professional training to help him in the task, and would have to fall back upon the non-expert qualities of commonsense or intuition. Other difficulties come to mind, and objections to such an examination on the part of the workers might be not the least of them. One thing certain is that the case which prompted these reflections shows clearly the need for the study of the psychological aspect of accidents; if this obvious need were met the results might be expected to teach us something valuable about prevention.

A GREAT MEDICAL EDITOR.

IN 1870 an English lad of 18, born at Moreton-in-the-Marsh, Gloucestershire, crossed to America and entered the University of Nebraska, where he won an important prize for an essay on the sheep industry. The lad was George Henry Simmons, who has just retired after 25 years' devoted service as editor of the *Journal of the American Medical Association*. On the occasion of the annual meeting of this Association in June last he was entertained to a banquet and presented with his portrait, but with characteristic diffidence he omitted to publish an account of the proceedings in the *Journal*, so that it is only now after the speeches and testimonials have been printed and privately circulated that we are able to give some account of the life and work of this great medical editor. After a brilliant career as a student at the University of Nebraska, Dr. Simmons began to study medicine and obtained a degree from a homœopathic school, after which he revisited Europe and obtained the midwifery licence at the Rotunda Hospital, Dublin. Not satisfied with this and while engaged in a busy practice he managed to obtain a supplementary degree from Rush Medical College, Chicago, and settling in Lincoln, Nebraska, he became a much-honoured member of the community. He founded the *Western Medical Review*, and in 1899 was appointed secretary of the American Medical Association and editor of its *Journal*. Although the Association had been established since 1847 and the *Journal* had been in existence since 1882 neither was in a flourishing condition, but from the moment Dr. Simmons took charge this state of affairs was changed and success attended his efforts from the first. From a circulation of 8000 the *Journal* increased the circle of its readers until now nearly 90,000 copies are printed each week, and this publication forms the chief source of income of the Association. But material success has not been the only result of the administrative abilities of George H. Simmons. The *Journal* has been conspicuous for its efforts to raise the standard of medical education in America, to cut down the number of inferior medical schools where the curriculum was inadequate to equip students as efficient practitioners of medicine, and in its campaign against quackery and all forms of medical fraud it has gained the support and admiration of the best elements of the medical profession everywhere. In connexion with this last Dr. Simmons was made the object of unprincipled attacks by the opponents of medical progress and by those whose means of livelihood had been impaired by the exposure of their frauds. The decision of the courts against the maliciously minded people who had thus attacked him was applauded by the whole community, and he has continued his efforts to teach the public what and whom to avoid both by the section on Propaganda for Reform in the *Journal*, which, week by week, deals devastatingly with some quack remedy or some patent-medicine vendor, and by the paper *Hygeia* which reaches a large lay public and endeavours to counteract the influence of the pseudo-medical columns in the less reputable newspapers. Nearly 500 of the leading members of the profession were gathered at the testimonial banquet to do honour to the man who, in the words of Dr. W. J. Mayo, has been "the greatest factor in the educational progress of the American medical profession in this generation." Prof. Harvey Cushing referred to him as an example of what America can do for an Englishman if it catches him young enough, and described him as "a man with energy, with vision and with administrative ability, willing himself to give untiring attention to details." In his reply Dr. Simmons modestly pleaded certain "extenuating circumstances," pointing out that the *Journal* had merely reflected the progress in medicine and medical organisation which had taken place during the last 25 years. At the age of 72 Dr. Simmons is now retiring from active work at his own request to enjoy the leisure which he so well deserves.

MEDICAL CANDIDATES FOR PARLIAMENT.

NOMINATIONS of candidates for the new House of Commons will only be completed to-day, Saturday. The list of medical men who were returned to the House of Commons in December, 1923, was as follows:—

Members.	*Constituency.*	*Party.*
Sir George Berry	Scottish Universities ..	C.
Dr. W. A. Chapple	Dumfries	L.
Dr. F. E. Fremantle ..	Hertford, St. Albans ..	C.
Dr. L. Haden Guest ..	Southwark, North	Lab.
Mr. Somerville Hastings ..	Reading	Lab.
Sir Sydney Russell-Wells ..	London University ..	C.
Prof. T. Sinclair	Queen's University, Belfast	C.
Dr. E. G. Spero	Stoke Newington	L.
Dr. J. H. Williams	Carmarthen, Llanelly ..	Lab.
Lieut.-Col. T. S. Beauchamp Williams.	Lambeth, Kennington ..	Lab.

C., Conservative; L., Liberal; Lab., Labour.

Dr. Walter Elliot was returned for Kelvingrove, Glasgow, at a by-election during the session, and the London University seat became vacant through the death of Sir Sydney Russell-Wells on July 14th. We understand that with one possible exception all the ten sitting medical members are standing again for their party and constituency. Sir Richard Luce is standing in the Conservative interest at Derby, and Dr. Thomas Watts (C.) will fight again for the seat he lost at Manchester, Withington. Both of these, as well as Dr. Elliot, Dr. Fremantle and Dr. Spero, will receive the support of the British Medical Association. Dr. Brackenbury, we fear, is not able to stand at this election. A number of medical candidates with some previous experience of contests are again seeking the suffrage. In London, Dr. Addison is standing as Labour candidate for Hammersmith South, Dr. Alfred Salter for West Bermondsey, Dr. Ethel Bentham for East Islington, Dr. H. B. Morgan for North-West Camberwell, and Dr. Stella Churchill is contesting North Hackney. Other probable nominations are Dr. O. Gleeson (Lab.) for Portsmouth, North; Dr. J. J. Lynch (Ind. Lab.) for Walsall; Dr. I. H. MacIver (Lab.) for co. Argyll; and Dr. Laura Sandeman (C.) for Aberdeen. Although the total representation last session was not large, it was evenly distributed over the three political parties; we may hope that the numbers may be further increased by the return of other medical men and women willing to put their experience at the disposal of the legislative body at a time when it is specially needed. Polling takes place on Oct. 29th.

FACTORY AND WORKSHOP (NOTIFICATION OF DISEASES) ORDER, 1924.—Under this Order, which comes into force on Jan. 1st, 1925, the provisions of Section 73 of the Factory and Workshop Act, 1901, are to apply to all cases of (1) poisoning by carbon bisulphide, (2) poisoning by anilin and its compounds, and (3) chronic benzene poisoning occurring in a factory or workshop.

Annotations.

"Ne quid nimis."

THE SCOTTISH BOARD OF CONTROL.

THE principal facts of general interest in the latest report [1] are contained in the preliminary observations. It appears, in the first place, that there has been a moderate increase in the numbers of all types of patients under care—i.e., certified insane, voluntary boarders, and mental defectives. The Board have therefore considered, in general terms, the steps whereby additional accommodation can best be made available, and the policy which has emerged is not without interest. Against the obvious remedy of enlarging existing asylums is set this fact: "Experience has shown that large institutions, while more economically managed from an administrative point of view, are less efficient from that of the interests and welfare of the patients." When, therefore, a proposal is received for the extension of an asylum with already more than 700 inmates, the local authorities are asked to consider how far the situation can be met by any of three courses—the establishment or extension of observation wards, the boarding-out of quiet and harmless cases, and the provision of separate accommodation for mental defectives. The two former propositions are self-explanatory, but the last involves the whole policy of the Government in dealing with mental deficiency, a problem which, as indicated in last year's report, is still awaiting satisfactory and adequate solution. Mental defectives are still being sent to asylums, and it is pointed out that their condition is one totally distinct from acquired insanity, and requiring altogether different treatment. In the great majority of cases special education, which is only available in the institutions solely devoted to this work, is capable of rendering the individual fit for ordinary life under suitable private care and able to follow some useful occupation. The extent of the accommodation in such institutions will have to be greatly increased if mental deficiency is to be dealt with adequately in Scotland, and this will have the incidental effect of relieving congestion in the asylums. There is another class of patient for whom asylum treatment is perhaps unsuitable and certainly often unnecessary—the senile dement. According to this report, 20 per cent. of total admissions are cases "labouring under the mental states incidental to old age," and it is suggested that many of these might be accommodated in "cottage hospitals and homes rather than the elaborate and expensive institutions such as modern asylums are." A good deal of attention is being devoted to the provision of observation wards, which now exist at five important centres, and it is recorded that these "undoubtedly subserve the needs of many patients suffering from early unconfirmed or temporary functional nervous diseases and mental disorders." Another step in the same direction has been taken by certain parishes in Argyllshire and elsewhere, in paying for the admission of voluntary inmates to district asylums. This is so far being done only on a small scale, and part of the reluctance to institute such provision more generally is, of course, due to the fact that such patients are not taken into account in the lunacy grant, the cost of their maintenance being borne entirely by the local authority. That the Board look forward to much more elaborate and more general provision in the future for the needs of voluntary patients is evident. "In the treatment of all such cases," the report runs, "the Board have come to the conclusion that district boards, either individually or in combination, and the authorities of Royal asylums, should be empowered to establish nursing homes, hospitals, outdoor and indoor clinics, particularly by arrangement with the managers of general hospitals throughout the country, where anyone desiring advice, care, and treatment may receive it as a voluntary patient."

[1] Tenth Annual Report (for 1923) of the General Board of Control for Scotland. Cmd. 2198. H.M. Stationery Office. 2s.

POLARIMETRIC ESTIMATION OF SUGAR IN URINE.

THE advent of insulin has made accurate urine-sugar estimation a necessity for everyone dealing with diabetes. Practically all the volumetric methods are difficult, and require great practice if consistent results are to be obtained. Moreover, they are unsuitable for general practice owing to the time required, the expense of solutions, and the tedium of washing up of apparatus used. In view of these facts, it is surprising that the hand polarimeter is not more extensively used by practitioners. These instruments, made by Zeiss and Reichert, and costing only a few pounds, are constructed to work with daylight, and have the length of their tube so adjusted that the scale reads off in percentages of sugar. On focusing the eye-piece, a circular field, divided diametrically, can be seen. If the tube is empty, and the scale set at zero, the whole of the field is of a uniform mauve tint. If, however, an observation tube containing diabetic urine is put into the apparatus the colours change, and the two sides of the field become uneven in tint. The scale is turned until the colours match, and the percentage of glucose can be read off directly on the scale. If the urine is very deeply coloured, 40 c.cm. should be shaken up with 10 c.cm. of 20 per cent. basic lead acetate solution (which is opalescent) and filtered. Observations are then taken on the clear fluid, but one quarter of the percentage read off must be added to allow for dilution. The only theoretical objection to this method is that lævo-rotatory substances such as β-oxybutyric acid may be present thus tending to lower the glucose rotation. This hardly comes within the sphere of practical politics, owing to the small quantities of these bodies present and to their low specific rotation index. In any case this error is preferable to those made by anyone not in constant practice who performs volumetric analysis. This method described is used as a routine in certain of our great hospitals and much valuable time is saved.

MICROSCOPIC ILLUMINATION.

Mr. Conrad Beck's treatise on the microscope,[1] written as it is by one who makes them, is calculated to be of great practical value to all who use microscopes. One chapter is frankly devoted to products of the writer's factory; the rest of the book might have issued from some purely academic source. In writing on aperture, photometry, glare, and illumination, Mr. Beck has, in places, broken new ground and his whole treatment of them is marked by unusual discernment. The accepted rule as to the relation between aperture and resolution is perhaps stated too positively. The limit of resolving power for ruled lines which has received the imprimatur of the Royal Microscopical Society is very useful to the students of Grayson rulings, but it is almost without significance in relation to such objects as bacteria which take the form of dark (or coloured) lines or dots irregularly placed on a bright field. Lord Rayleigh showed that a single dark line under these conditions would be a visible object even although its actual width should fall considerably short of the half wave-length of light. The remark applies with even more force to a small circular or approximately circular object, and it is a serious shortcoming in books upon the microscope that this problem has not received consideration. The separate visibility of regularly ruled lines is by comparison unimportant. The separate visibility of dots and lines (flagellæ) seen in a bright field is a subject the importance of which can hardly be over-estimated. It is in this connexion that the problem of illuminating the object on the stage of a microscope acquires its chief importance. When we begin to deal with objects the dimensions of which fall below the half wave-length of light

[1] The Microscope. Part II. A Sequel to The Microscope: a Simple Handbook. By Conrad Beck, C.B.E. London: R. and J. Dick, Ltd. 1924. Pp. 231.

limit, the problem of illumination becomes all-important, and the most serious of the microscopist's difficulties are caused by the faulty lighting which results in glare in the instrument and the flooding of the object with top light. This is a subject which Mr. Beck has taken much trouble to investigate and on which his book contains much original and valuable matter. One criticism suggests itself. Experiments are described in which the author attempts to identify the source of the top light by which dark objects in a bright field are attenuated or even obliterated if the top lighting be sufficiently overpowering. The lenses of the microscope itself are an obvious source of such top lighting and their effect was accordingly investigated, but with a curious result. Mr. Beck sums up his conclusion under this head in the words, "Reflections from the surfaces of the lenses of the microscope do not appear to be sufficient to cause much effect with transmitted light" (p. 110). Now there is one lens surface in the microscope which is, unless precautions are taken against it, a source of perfectly overwhelming top lighting on the stage—that is to say, the back face of the front lens of the objective. It is a large segment of a sphere of which the centre lies in or very near the object on the stage. If the source of light is focused at its centre this lens will re-focus it at the same point with light thrown down from its back face. In the case of a high power lens in which this segment may approximate to a hemisphere and the under face be optically abolished by immersion oil, this focused reflection easily becomes overwhelming. Thus if a small fragment of etched metal be mounted in the centre of the stage, leaving room for sufficient light to enter the lens from the bright field round its edges, it will be seen brilliantly illuminated in this way. It is for this reason that it is found impossible to see a diatom to advantage if the light source is accurately focused in the conjugate plane to the plane of the stage on which the diatom lies. This kind of faulty lighting is equally pernicious when bacteria or other dark objects are observed upon a bright field, and it is a point to which the attention of the medical practitioner, in particular, should be pointedly called. If we are disposed to find fault with the author for having missed this point, it would be necessary to add that Mr. Beck has done more than any other text-book writer to elucidate this branch of microscopic technique.

CARCINOMA OF THE STOMACH IN YOUNG PEOPLE.

IN a paper read before the Southern Medical Society Dr. Raymond P. Sullivan,[1] of New York, devotes his attention to the occurrence of carcinoma of the stomach in the first two and a half decades of life, of which he has collected 21 examples, as well as a case which recently came under his own observation. Although no age is immune, gastric carcinoma is extremely rare during the first decade, only six out of 7000 cases of carcinoma of the stomach analysed by Osler and McCrae being of this age. Four of these were in children under 6 weeks, one was in an infant of 18 months, and one was in a boy of 8 years. During the second decade gastric cancer is also rare, only 13 such cases being found in the series of Osler and McCrae. In the third decade the condition is more common and probably occurs to the extent of 3–4 per cent. Among 50 cases of gastro-intestinal cancer in youthful persons collected by Bernouilli in 1907, the stomach was the seat of the tumour in 13, in 5 of which the pylorus was the part affected. In 3 cases the cancer was supposed to have originated from ulcer of the stomach. Five of the 13 cases were colloid cancers, three scirrhous cancers, one adenocarcinoma, one medullary solid carcinoma, one a mixed type, and in one no statement as to its nature was made. Juvenile gastric carcinoma is characterised by sudden onset, rapid course with persistent high temperature, absence of cachexia, and early metastases. The absence of cachexia is explained by the rapid course, so that the digestive disturbances lead to loss of weight without having time to produce marked wasting. The high temperature is referable to disintegration and breaking down of carcinomatous tissue, the fever beginning at a relatively early stage and persisting until death. Among the important diagnostic aids in these cases other than X rays is the proper use of gastric catheterisation. Operative treatment is indicated in all cases in which removal of the tumour and its immediate metastases seems possible as well as in cases in which the growth has produced stricture of the cardiac or pyloric orifices. Non-operative methods such as irradiation with X rays or radium have not yielded encouraging results. Partial gastrectomy when possible is the operation of choice. Gastro-enterostomy is indicated when radical surgery is no longer possible or in existing or incipient pyloric stenosis in inoperable cases. Dr. Sullivan's case was that of a man aged 22, who had suffered from epigastric pain for four months with loss of flesh, strength, and weight. A provisional diagnosis was made of ulcer of the posterior gastric wall, but on laparotomy the posterior gastric wall was found to be fixed to the pancreas by an irregular growth occupying the pars pylorica and pars media. A partial gastrectomy of a modified Billroth II. type was performed. When seen eight months after the operation the patient was in good condition, no sign of recurrence was found, and the X rays showed evidence of good gastric function and motility.

[1] Surgery, Gynecology, and Obstetrics, September, 1924.

HOOKWORM SURVEY IN SIAM.

BETWEEN June, 1921, and April, 1923, an extensive survey was carried out in Siam to determine the extent and severity of hookworm disease and other intestinal parasitic infection throughout the kingdom as general data required in the development of a comprehensive programme to control the infection were lacking. The work was done under the auspices of the health section of the Siamese Red Cross Society, of which H.S.H. Prince Vallabhakara is director, in coöperation with the International Health Board of the Rockefeller Foundation, of which Dr. M. E. Barnes is director for Siam, assisted by Dr. H. R. O'Brien. Attention was also paid to the collection of other health data, the stimulation of improvement in sanitary conditions, and the conduct of a general health educational campaign. The final report of the survey has recently been issued.[1] Six survey units were engaged in the work, each consisting of a medical officer and four assistants suitably equipped. Lectures and demonstrations in schools and public buildings were given in order to conduct effective health educational propaganda. Siam is divided into 74 districts (or changwats), in 44 of which investigations were conducted. The kingdom can be divided geographically into four regions. The most important is the great river valley of the Me Ping, whose headwaters rise in the mountain ranges of the north; in the south it narrows out into the neck of the Malay Peninsula. Most of the inhabited area is only a short distance above sea-level and supports a population of nine millions. There is only one large city; the great bulk of the people live in villages of 100–800 residents each. Rice is the universal crop. The prevalence of hookworm varies very markedly in different parts of the country. There are three main centres of infection lying in the far north, the east, and the far south. In the southern districts the incidence of infection is found to vary with the distance from the sea. The infection-rate in Bangkok proper is 8·3, while in Chiengmai in the north it is 81·5 per cent. A complete explanation for these variations in infection-rate awaits further investigation. In this survey campaign 243,930 persons were examined, of whom 7·35 per cent. were found infected. A remarkable uniformity exists throughout the country in the distribution of the various age-groups; the rate rises steadily from infancy and

[1] Final Report on Hookworm Survey and Health Propaganda Work in the Kingdom of Siam. Health Section, Siamese Red Cross Society.

reaches its peak during the period 40–60. Females are only slightly less heavily infected than are males of the same ages. As regards race susceptibility, the Chinese have practically the same infection-rate as their Siamese neighbours; the Indians maintain a slightly higher rate. Of the total population examined no less than 75·8 per cent. are infected with some intestinal parasite, and next to the hookworm, *Ascaris lumbricoides* is the most important. Very considerable attention is being given by the survey units to the question of health propaganda designed to create popular interest in public health matters.

DR. KERR'S RETIREMENT.

AT the County Hall on Oct. 1st Dr. James Kerr was entertained by a large number of his colleagues past and present, and Sir William Hamer handed to him a memento of the high appreciation in which he has been held as research medical officer to the London County Council. Dr. Kerr entered the service of the London School Board as medical officer in 1902. Before that he was in practice in Bradford, where as honorary surgeon to the Bradford Royal Eye and Ear Hospital and medical superintendent to the Bradford School Board he conducted an active exploration of the possibilities of school hygiene, a field hitherto untouched, using unorthodox but scientific methods of investigation into such questions as vision-testing, estimation of mental ability, and infectious disease. His work in this direction was recognised by the award of the Howard Medal of the Royal Statistical Society for an essay which contained the first reference to congenital aphasia in cases of word-blindness and word-deafness among school-children. On this early work of Dr. Kerr's has been erected the vast structure of the school medical service as it stands to-day. He was also an active member of the Departmental Committee on Physical Training, and took a prominent part in organising the International Congress on School Hygiene, which was held in London in 1907. During the war Dr. Kerr founded and, until he left the service, directed the London Psychological Clinic for treating patients suffering from shell-shock by re-educative methods. He has been for many years a member of the Council of the Illuminating Engineering Society, and was one of the English representatives appointed to the recent International Conference on Standards of Illumination. All which goes to show that in retiring from the routine of office work Dr. Kerr does not intend to lead a life of leisure. We may hope that he will embody his unrivalled knowledge of the principles of school hygiene in some permanent form. We understand that he has not quite severed his connexion with the London County Council, which will still be able to avail itself of his services in a consultative capacity.

PREVENTION OF HEART DISEASE IN NEW YORK.

AN account of pioneer work carried on in New York was given recently at a post-graduate medical course in Dayton, Ohio, by Dr. Haven Emerson, president of the Association for the Prevention and Relief of Heart Disease.[1] Dr. Emerson compared the present situation with regard to heart disease to the position which tuberculosis held a few years ago. Organic heart disease is at the present time the first of the killing diseases in America. It is not at present thought of as "curable, preventable, and communicable," yet there are grounds for supposing that to a certain degree all three of these adjectives are applicable. A large proportion of cases result from the rheumatic group of infections, while syphilis is responsible for a growing proportion of the organic lesions arising after the age of 30. Forty-eight heart clinics have been established in the city of New York, cases being referred to them by the general hospitals and dispensaries. Dr. Emerson mentioned that in one children's hospital the amount of "bed time" devoted to cardiac cases had been reduced from 30 per cent. to a mere 6 per cent. by the opening of these special clinics. While the general hospitals are relieved, the patients have the advantage of after-care very much like that given to the tuberculous, and a certain amount of vocational guidance. Two trade schools for teaching appropriate crafts to children with heart disease have been opened in New York. A suggested list of suitable trades for skilled and semi-skilled workers of either sex is published by the Association amongst their educational literature. The Association has also been successful in persuading convalescent homes and summer camps to open their doors to heart cases. These institutions no longer fear the possible complications of a sudden death when the heart cases sent to them have been certified by a specialist in the heart clinic as suitable for their particular variety of institutional treatment.

[1] Executive Secretary, Miss M. L. Woughter, 370, Seventh Avenue, New York.

THE CANCER CAMPAIGN IN NORWAY.

IN the October number of the *World's Health*—the review published by the League of Red Cross Societies in Paris—an account is given of the cancer campaign in Norway by Dr. F. G. Gade, who is the secretary to the Norwegian Committee for Cancer Research, and who is well known in Norway as the greatest driving force in this campaign. As he points out, the isolated and stationary character of the population in the country districts has been exploited by the Cancer Committee which has induced many doctors in settled country communities not merely to notify cancer deaths, but also to undertake a study of such subjects as heredity, which require a stationary population. It is interesting to note that cancer of the uterus is very rare in the isolated country districts, and that of all the notified cases of cancer of the lip 97 per cent. involved the lower lip, and as great a proportion as 88 per cent. of all these patients were males. Nearly all these cases came from distant valleys among the mountains, or from forest or coast districts where the clay pipe is still much smoked. It is only since 1919 that the Cancer Committee has succeeded in getting all medical officers of health to give a special yearly report on deaths from cancer in their districts, the scheme of this report being framed by the Committee with 30 different localisations, more or less on the lines of British cancer statistics. From 2700 to 3000 deaths from cancer occur in Norway every year. Cancer, which is responsible for 7 per cent. of all the deaths, ranks after tuberculosis and old age as the most common single cause of death. There are 10·9 deaths from cancer for every 10,000 living persons in Norway. The disease is equally distributed between the sexes, for while 51·8 per cent. of the patients are women, it should be noted that 51·3 per cent. of the total population is female. From 51 to 52 per cent. of all the cases of cancer affect the stomach, and 66 per cent. are found somewhere in the digestive tract. Cancer of the uterus, ovaries, and breast accounts for 12 per cent. of all the deaths. It is doubtful if the growing number of notifications means that the frequency of the disease is increasing, for such factors as improved methods of diagnosis and the greater average longevity of the population may give an erroneous impression in this respect. To facilitate early diagnosis, arrangements have been made at the pathological institutes in Christiania and Bergen for free microscopic examinations of material removed at operation or after death. Several thousand such examinations have been made. A large modern cancer hospital is soon to be built near Christiania, and already two and a half million kroner have been collected for it. It is to be equipped with all the modern means for diagnosis and treatment, and is intended mainly for poor patients suffering from inoperable disease. The Cancer Committee also conducts propaganda for the early diagnosis of the disease.

TYPHUS AND *TYPHUS*.

THE Weekly Return of Infectious Diseases, issued by the Registrar-General for the week ended Oct. 4th, contains an announcement of one case returned as typhus fever, and a cross reference shows that the notification came from the metropolitan borough of Bethnal Green. Dr. G. E. Oates, medical officer of health for the borough, informs us that this case was not one of typhus at all, but was notified from the German Hospital as *typhus abdominalis*, which is the German term for typhoid fever. We are not concerned to inquire particularly how the misunderstanding developed into a slightly alarming entry in the Weekly Return. It may, however, be well at a time when international thought for infectious diseases is overstepping national and political boundaries to make sure of a nomenclature which is generally understood. It is now long since with the aid of Jenner and Murchison a group of dangerous febrile illnesses of long duration was finally split up into typhus and typhoid, and it was, no doubt, wise to introduce names of markedly distinct tone. The word *typhus*, however, continued to do service in the German-speaking countries for the whole group, a qualifying adjective being added: *abdominalis* corresponds to our typhoid; *exanthematicus* to typhus fever; *recurrens* to relapsing fever. It would probably be a safeguard for us also to qualify the term typhus with the adjective exanthematic and so, as we become more polyglot, avoid a source of confusion which has here shown itself in high places. It is the less to be regretted that the Nomenclature of Diseases issued by the Royal College of Physicians of London in its latest edition dropped the foreign equivalents, since its place may be filled by the International List of Causes of Death, revised at a Paris conference in 1920.

THE CLINICAL THERMOMETER AS NOXA.

THERE is a pleasant theory, largely justified by practice, that the doctor lives a charmed life and, as he goes about his daily work, does not become infected himself with the many infective agents with which he comes in contact, nor does he carry these with him home or to other patients. This professional immunity seems also to include that faithful instrument of general practice, the clinical thermometer. We know of no exact inquiry into the usual habit of the practitioner, but no doubt a large proportion simply cleanse the bulb of the thermometer with water or soap-and-water before replacing it in the case. In THE LANCET of August 23rd (p. 406) Major H. C. Brown, I.M.S., demonstrated that this method of cleansing the clinical thermometer is ineffective in the case of intentional contamination with a laboratory germ, and he documented his statement with abundant cultures of the bacillus from clinical thermometers which had been washed in water and wiped with a clean cloth. This is the bacteriologist's challenge. Now, there is every reason that the clinical thermometer should be freely used on all possible occasions, and that no unnecessary formality should stand in the way of such use; experience of general practice is in the final issue the best criterion of how to use it. The practitioner who has to adapt clinical means to clinical ends need only observe the aseptic code in so far as it is of proved necessity. The mouth is evidently provided with efficient measures, whether natural or acquired, to prevent infection of modest intensity. Otherwise what infant would escape whose comforter is replaced in its mouth or what adult who consumes ripe cheese? Nevertheless, more attention should be paid to the avoidance of conveying living germs by the clinical thermometer. Instrument makers have already made it small and convenient for us in a way unfamiliar to the Continent, where a thermometer is often the size of a long cigar; the reservoir has been arranged so that the thermometer reads quickly and the mercury shakes down easily; it is apparently too much to ask for a glass thermometer which can be dipped in boiling water without bursting. The Immisch thermometer, which consists essentially of metal, is as yet a pleasant scientific toy. It is true that manufacturers have of recent years made glass which can be heated red hot and dipped in cold water without breaking, but so long as the constricted neck remains an essential part of the mechanism of the clinical thermometer, any sudden application of heat must continue to burst the bulb. We are driven, therefore, to fall back on the more prolonged action of antiseptics. Antiseptic thermometer cases without number have been devised. One was described in our columns more than 20 years ago, in which the case could be filled two-thirds with strong carbolic solution. Other instruments provide an absorbent lining which can be moistened with antiseptic lotion; the evolution of formaldehyde vapour within the case has also been effected. There are a number of simple devices now on the market, and the St. Dunstan's case,[1] to which we have already called attention, is highly ingenious in conception and quite satisfactory in practice. The practitioner might in many cases, as a correspondent has reminded us, put the onus of providing a clean thermometer on the patient, remembering that a family is much less susceptible to its own bacterial flora. But Major Brown's warning is a word in season.

THE Final Report of the Departmental Committee on the use of Preservatives and Colouring Matters in Food is being printed and will shortly be issued from H.M. Stationery Office. The terms of reference to the Committee have been extended to include the question of the treatment of flour with chemical substances, and the Committee will now proceed to inquire into this question.

A MEETING is being arranged by the Royal Society of Medicine at 1, Wimpole-street, London, W., on Nov. 6th, at 8 P.M., between the Section of Obstetrics and Gynæcology and the Section of Epidemiology and State Medicine and the Society of Medical Officers of Health, to discuss the notification of puerperal sepsis. Those engaged in general practice, who are not members of the Sections and Society mentioned, will be welcomed as visitors and are invited to take part in the discussion, as it is thought to be very desirable that the views of the general practitioner should be put forward as well as those of the obstetrician and medical officers of health.

AT the second session of the Royal Commission on Lunacy the Board of Control was again under examination. Sir Frederick Willis informed the Commission that of the 5525 patients sent out on trial during a recent year a large proportion had to return again to institutional care. The insufficiency of accommodation for mental cases would, he said, in a short time become serious. The Chairman of the Commission remarked that workhouses were not proper places for the reception of patients likely to improve under treatment, a point on which the Board of Control would welcome discussion. In answer to a representative of the National Society for Lunacy Reform, Sir Frederick Willis said that not more than six cases a year of cruelty to patients occurred in which dismissal or other disciplinary action was taken instead of prosecution, and all allegations of cruelty were followed up. The present machinery of certification and detention, he thought, adequately safeguarded the liberty of the subject. Sir George Schuster described the legal position of the Lord Chancellor in lunacy matters. The next meetings of the Commission will be held at 5, Old Palace Yard on Oct. 21st and 22nd, beginning at 10.30 A.M. each day, when evidence will be taken from the Ministry of Health.

[1] Issued by St. Dunstan's (registered under Blind Persons' Act, 1920), who receive half the inventor's royalty on all cases sold. Manufactured and distributed by J. J. Hicks, 8, Hatton-garden, London, E.C.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XCII.—THE TREATMENT OF HÆMORRHAGE IN THE NEW-BORN INFANT.

THE two main types of hæmorrhage which may be seen in the new-born—true birth hæmorrhage and spontaneous hæmorrhage—are as distinct in their treatment as in their ætiology. Like most affections peculiar to the early days of life these conditions have not received the attention which is their due, considering their frequency and the high death-rate which is associated with them. Without entering into details as to the somewhat obscure ætiology of certain varieties of hæmorrhage, one may mention, as a basis for rational treatment, the forms in which the bleeding may occur in the new-born infant, and their probable origin.

Birth Hæmorrhage.

True birth hæmorrhage is by far the commonest type of bleeding in the new-born. It is now becoming recognised that the underlying cause is the congestion resulting from asphyxia during parturition. In all infants born with asphyxia livida this congestion is well marked, and in the majority some form of hæmorrhage is present. It may be only petechial or capillary, but it may be of a grosser character. Such congestion, with or without hæmorrhage, is often fatal. The treatment is largely prophylactic and consists in the prevention of undue asphyxiation of the fœtus by keeping the duration of labour within reasonable limits. A child which is born deeply asphyxiated, with its heart engorged with blood and all its veins and capillaries congested, can hardly fail to benefit from the withdrawal of some blood from the circulation. Hence good results may be obtained by allowing a few c.cm. of blood to escape from the cut end of the cord. Care should be taken to avoid violent manipulations which might lead to traumatic rupture of vessels in an asphyxiated and congested infant.

Traumatic hæmorrhage may occur either during labour or after delivery. Intracranial hæmorrhage from tearing of dural structures, such as the tentorium cerebelli, is of frequent occurrence, and is so often associated with a breech delivery that the correction of this malpresentation would appear to be the obvious method of lessening the incidence. Difficult forceps deliveries are also responsible for some cases of this form of hæmorrhage, but in others it is difficult to indicate any measure which might have been employed to prevent the occurrence. Gross hæmorrhage may occur into the body cavities from traumatic rupture of deeply congested organs. The best example of this is rupture of the liver—or rather of the liver capsule—which is not infrequently attributable to the use of violent efforts to establish respiration. The Schultze method of artificial respiration is particularly apt to lead to this type of hæmorrhage. When gross hæmorrhage has given rise to increase in intracranial pressure much benefit may be derived from lumbar puncture, repeated from time to time as required. On account of the practical impossibility of localising the lesion with accuracy, surgical procedures are not advisable, though attempts have been made to deal with intracranial hæmorrhage in this way. Hæmorrhage into internal organs is also unsuitable for surgical treatment in the absence of localising signs.

Spontaneous Hæmorrhage.

The terms spontaneous or idiopathic hæmorrhage have been used to describe a variety of conditions found in the new-born, all of which have bleeding as their most striking feature. They are not to be confused with the forms of hæmorrhage referred to above. In any case where doubt exists an estimation of the coagulation time and of the bleeding time will settle the matter, for in spontaneous hæmorrhage these are both definitely prolonged. Some cases of spontaneous hæmorrhage are associated with sepsis, others occur in congenital syphilis, while others again are of such obscure ætiology as to justify the retention of the term *idiopathic* in describing them. Rare forms exist such as Winckel's epidemic hæmoglobinuria, and it is held by some authorities that even true hæmophilia may lead to hæmorrhage in the new-born. The commonest manifestation of all these conditions is bleeding from the alimentary tract—melæna neonatorum and hæmatemesis. Bleeding also occurs into the skin, into the brain, into the abdominal and thoracic viscera, and from the umbilical stump. The chief loss of blood, however, is from the gastro-intestinal tract, and the amount lost is so great as to reduce the child to a state of extreme anæmia which soon proves fatal if the hæmorrhage is not checked.

In the treatment of such infants we have now a remedy which is practically specific. It consists in the subcutaneous or intravenous injection of *whole blood*. This leads to arrest of the hæmorrhage, and, if it has been applied in time, recovery is probable. The use of serum has been recommended by some writers, but the results appear to be much inferior to those obtained from the injection of whole blood. In all cases where it is suspected that the "hæmorrhagic diathesis" exists the coagulation time and the bleeding time should be estimated.

To test the *coagulation time* all that is required is a sharp Hagedorn needle, a pair of watch-glasses, and a small lead shot. These should be carefully cleaned with soap and water followed by ether. A drop of blood is allowed to fall from a needle puncture in the heel into one watch-glass containing the shot, and the second watch-glass is inserted over it to prevent evaporation. Every half minute the glasses are tilted so as to allow the shot to roll. The point at which it ceases to do so is taken to indicate the time of coagulation. Tested by this method the normal coagulation time in the new-born ranges between five and ten minutes. In cases of hæmorrhagic disease the period may be prolonged to half an hour or more.

In the normal child the *bleeding time* ranges between two and five minutes. It is tested simply by pricking the skin of the heel and removing the drops of blood with filter paper as they appear. If they continue to do so for more than five minutes there is an increase in the bleeding time. In many cases of hæmorrhagic disease the puncture goes on oozing for hours or even days.

Injection of Whole Blood.

As soon as the diagnosis is confirmed in this way preparations should be made for the injection of blood.

Subcutaneous Injection.—The simplest method of doing this is with an ordinary serum syringe of about 20 c.cm. capacity. The syringe is sterilised and fitted with a fairly wide-bore needle such as is ordinarily used for intravenous therapy. The arm of the donor is constricted with a tourniquet, the skin is cleansed, and the needle of the syringe inserted in a vein. From 10 to 20 c.cm. of blood are taken into the syringe and the instrument is withdrawn after removal of the tourniquet. Without delay the needle is inserted through the sterilised skin of the infant in the mid-scapular line. The needle should point outwards towards the axilla. The blood is then injected deeply into the subcutaneous tissues. When the needle is withdrawn the puncture is sealed with collodion and the surrounding area is gently massaged for a minute or two. The results of this treatment—provided it is applied early enough—are very satisfactory, and the ease with which the operation can be performed makes it a method of real use to the practitioner.

Intravenous Transfusion.—It is claimed that even better results are obtained, however, by the intravenous transfusion of blood. For this purpose either a large serum syringe or one of the more elaborate forms of transfusion apparatus may be employed. If a syringe is used it should be one of 20 c.cm. capacity, and should contain 2 c.cm. of a 10 per cent. solution of sodium citrate. A cannula with a short rubber tube attached is inserted into the donor's vein and clamped. A similar tube and clamp are attached to the needle inserted into the infant's vein, so that as many syringefuls of citrated blood may be given as the child may be thought to require. A severely exsanguinated infant can take as much as 15 c.cm. of blood per pound of body-weight (L. B. Robertson). With regard to the route chosen for intravenous injection in the new-born infant, it may be noted that the superior longitudinal sinus is the most satisfactory one. For anyone who is in the habit of performing venipuncture it is a simple matter to enter this sinus through the anterior fontanelle. The child, wrapped firmly in a blanket, is placed on a table on its back, the needle is held at an angle of about 25° with the skin, and is inserted at the occipital angle of the fontanelle with its butt towards the frontal region. Another method is to use one of the veins of the scalp which are so prominent in young infants. Unfortunately they are less easily punctured when the child is exsanguinated. If this route is chosen the child is held firmly on the side with its head resting on a sandbag or hard pillow. Pressure with the thumb on the temporal region will bring the veins into prominence, and the needle can be inserted almost parallel to the skin with its butt pointing towards the crown of the head. The arm veins are not suitable for intravenous injection in the infant, but the internal saphenous vein and even the external jugular vein have been used with success.

Precautions in Selecting a Donor.—A word may be said with regard to the choice of a donor. Ideally the blood of the donor should be tested to ensure that the Wassermann reaction is negative, and the blood of both the donor and of the infant should be "grouped." If there is no opportunity for testing the compatibility of the donor's blood, the safest procedure appears to be the injection of the mother's blood subcutaneously, as described above. A very simple method of carrying out the compatibility test is, however, available. A few drops of the infant's blood are allowed to clot in a capillary tube or Wright's capsule. The serum is then separated from it by swinging in a centrifuge. A *large* drop of the serum is transferred to a slide by means of a capillary pipette wet with citrate solution. To it is added a *small* drop of the donor's blood and a cover-slip is put on. If no agglutination of the corpuscles is seen under the microscope at the end of five minutes the bloods may be regarded as practically certain to be compatible.

In addition to the specific treatment described, every care must be taken to conserve the infant's strength by warmth and feeding. If possible, a quantity of fluid (either water or normal saline) should be given by the mouth. This is readily absorbed, and helps to restore the blood volume.

J. N. CRUICKSHANK, M.D., F.R.F.P.S. Glasg.,
Physician to Out-patients, Royal Infirmary; Pathologist, Royal Maternity and Women's Hospital, Glasgow.

THE LATE DR. W. M. EATON, OF BULAWAYO.—Walter Musgrave Eaton, M.B., C.M. Edin., D.P.H. Camb., Assistant Medical Director of South Rhodesia, and medical superintendent of the Bulawayo Memorial Hospital, died with tragic suddenness there early on Saturday morning, Sept. 13th. He was taken ill while motoring on the previous day, and was brought into Bulawayo. Born in Cape Province, Dr. Eaton was 60 years of age, and had earned a high professional reputation in Rhodesia, where he had practised for many years. Dr. Eaton is survived by his widow and three sons.

Address to Medical Students.

INDIVIDUALITY IN MEDICINE.

An Address delivered to the Students of Durham University Medical College at the Opening of the Winter Session, Oct. 6th, 1924,

BY SIR THOMAS HORDER, BART., M.D., F.R.C.P.,
PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

I THINK it highly probable that all that is worth saying upon an occasion like this has already been said. And I have refrained from reading any such addresses as I am now giving because I know so well from experience that if I read what others have said in similar circumstances, I get so discouraged that I am even more conscious than I otherwise should be of my own incapacity. So what I shall say to you to-day has at least the merit of being my own thoughts, and it would, after all, be a sad commentary upon my use of the opportunities afforded by medicine if 30 years of teaching and practice found me barren of any reflections that are worth telling to an audience like this. I feel that the chief risk I run is regaling you with a string of platitudes—saying things with a solemnity of utterance that are really distinguished by nothing save extreme tenuity of thought. If I warn both you and myself of this possible disaster I may at least avoid the extreme degree of it.

Let me consider, first of all, what it is that you have chosen as your profession. In the Middle Ages the schoolmen did not regard medicine as one of the "liberal arts and sciences." That was probably because in their day medicine was no longer an art, and still less a science. I say "no longer" because it is clear both from literature and from archæology that medicine was a very well-developed art a thousand years before the time of which I speak. But in Chaucer's day it had ebbed so low that it had become something less even than a craft. It was artful, but devoid of art. Nor did it become an art again until science had its renaissance. Then, with the re-birth of anatomy, physiology, physics, and chemistry, medicine became both a science and an art. It has continued to be so. I should perhaps scarcely be challenged if I said that it has become the most liberal of all the arts and sciences, that is, the most worthy the pursuit of a free man.

I have wondered what it was that enabled medicine to survive during that long period when its art was forgotten and its science was not born. I can only think that it was the person of the doctor that kept medicine alive; that the men who set themselves apart to alleviate human ills supplied in place of the knowledge they lacked and the art they had no chance of studying an individuality that appealed to their distressed patients and somehow served a useful purpose. They were certainly men of learning, most of them, and close contact with their fellows in all manner of experiences probably brought them a wisdom which was rather above the average. It was, no doubt, that sort of wisdom which we term judgment and which, if we have it not in medicine, though we "know all mysteries and all knowledge," we are nothing. They would learn patience, too, these men, and courage, and understanding, and, most of all, they would get to love their fellow men.

PERSONALITY OF THE DOCTOR.

Although the idea has gone a little out of fashion, I think this same element of personality is still essential in the doctor if he is to achieve the purpose for which he stands. I do not mean merely that he shall possess certain natural characteristics which are pleasing and acceptable to the ill person, though these, too, are of service and are by no means to be disregarded. A good presence lends a credence to a hopeful

prognosis, and a cheerful countenance sometimes saves a patient from despair. I was once leaving the sick-room of a powerful young international footballer who was ill with pneumonia. All the signs were in his favour, and I had no anxiety about the issue. Imagine, therefore, my dismay when he called me back to his bedside and asked me in a hoarse whisper, "Is there a fighting chance, doctor?" His terror was due, not to his own condition, but to the doleful face of his medical attendant. Patients choose their doctors for all sorts of reasons, and none of us can afford to scorn Nature's gifts on the physical plane. "Tell me, Mrs. Smith," I once asked, rather reflectively, a lady who was giving me some breakfast after a very strenuous night spent with the family doctor in keeping her husband alive, "tell me, what led you to choose Dr. Jones for your new medical adviser?" They were old friends of mine, and they had gone to live in a new district. "Oh," said Mrs. Smith, "you remember, Sir Thomas, we are musical, and Dr. Jones has such a fine tenor voice."

Then there are in some doctors natural tricks of manner that attract. Some doctors manufacture mannerisms; they are not such good assets as the natural ones, and I do not recommend them. And yet they sometimes succeed. Since Abernethy's time one occasionally sees a medical man adopt a brusqueness of behaviour which tells with certain patients. Speaking of his wife's doctor to me one day a friend said. "My wife trembles when she hears his foot on the stairs," and learning this I understood, for the first time, her great confidence in him.

But when I speak of the personality of the doctor, I mean more than all these things. I mean the personality which is the outcome of a concentrated and developed individuality. Every man's individuality is a new factor in the universe, a contribution to life and, in the case of the doctor, a contribution to healing. This individuality, which you decide to devote to the high purpose of medicine, is the thread upon which you string the beads of observation, of experience, of patient work, and of sound training. These things by themselves, valuable though they are, do not fit you to be a good doctor; but when they are transmuted through you, when they are dissolved in the general solution of your life, they crystallise out as an influence which brings health to the sick and comfort to the unhappy. I do not think I can get nearer to my meaning than that. This ideal is a high one, making the doctor a priest as well as a physician, and yet it is not higher than the ideal laid down for our profession by the Hippocratic school two thousand years ago: "With purity and with holiness I will pass my life and practise my art." Doubtless you remember these words in the immortal oath.

WORLDLY SUCCESS.

There may be some who are thinking: These high-falutin' considerations are all very well, but the question really is, can one make a success of the thing, worldly success, that is—because a man must live—will the thing pay? Well, I think I can promise you that you can always earn a modest competence at it, a minimum wage—yes, even accepting the present-day notion of a minimum wage—enough money, that is, to keep you free from anxious care, always assuming your needs are few and your tastes simple. I do not think I have ever seen a qualified medical man in pecuniary straits except as the result of ill-behaviour, or foolish speculation. But I am not going to promise you more than this, because whether you become rich or not will depend upon quite adventitious things. For example, some of you may possess business acumen. If you do, you will probably make medicine pay, just as you would make any other calling in life pay. Then again you may find yourself in charge of a very large panel practice. Or you may become an eminent surgeon, being endowed with hands of such singular dexterity that it seems a pity not to use them very frequently. You will most likely earn quite a large income. If, in addition, you are gifted with that valuable asset termed "a good address," you certainly will, for few whose complaints are amenable to surgical methods—and whose are not?—will long escape your siren influence. Then once more, you may be attracted to some new vogue in medicine, something that so tickles the public fancy that, leaving all other doctors, they flock to you to be healed. You will thrive. But in this last instance you must make haste to exploit the new remedy whilst it is still new; and it may be just as well to study the next "stunt" in advance during the few spare moments that a busy practice gives you, so as to be ready for a quick change as soon as the fashion alters. But Durham graduates will not be found in this last category. I can, as I say, promise you that well within the limits of conduct that an honourable man imposes upon himself you will be able to discharge all the pecuniary obligations of citizenship by the practice of your art. As for riches, my friends, if you are attracted by them you have chosen your vocation very foolishly. Sydenham, the father of English medicine, summed up the situation admirably when he said, "But if any think that riches, got by such a reputation, has in it somewhat more of solidity, let them enjoy what they have scraped together with all my heart, but let them remember that many mechanics of the most sordid trades get and leave more to their children." And one might add in these days that if you want to grow rich by dabbling with medicine, you will not get qualified at all. You will, of course, be careful to keep to the windward of the law, and your friends and patrons will think you are ostracised by the profession, and prevented from entering the ranks of the regular practitioners by sheer jealousy. It will all be a gorgeous advertisement. Politicians and dignitaries of the Church and county squires will demand that you be given a diploma or an honorary degree—which is, of course, the last thing that you want. You will engage in bloodless surgery (beneficent sound!), or cheiropractic or the laying on of hands. And you will flourish as the green bay-tree.

It may be that some of you are still wondering if you have chosen well in taking medicine for your vocation. If so, I sympathise with you most heartily. I still wonder myself at times, and it is one of the grievances I have never ceased to allow myself, that there never seemed a good opportunity between my preliminary science studies and embarking upon the subjects of the first M.B., nor again when the time came to change those for the medical and surgical wards, when I could go apart, as it were, and thresh out thoroughly the question of my fitness for medicine. For I was brought up to believe that medicine required special gifts and a definite leaning towards it on the part of the disciple. But for your peace of mind I advise you to leave all this heart-searching alone. From all I see of good and bad doctors—though heaven forgive me if I ever claim to be a judge—I am led to believe that the die is cast long before the decision to study medicine is taken. Perhaps it is cast no less certainly for all avocations in life. I do not suppose for a moment that the poet is the only creature who is born and not made. I am sure I have quite a number of friends amongst laymen who would make excellent doctors, and I occasionally meet a medical colleague who makes me wonder a little if some other branch of human activity than ours has not lost a leading light. I do not think it is possible for even the best observer of character, or rather of temperament, in the boy or girl, to be certain of these things beforehand—no, not even the boy's or girl's own mother!

A FIELD FOR FREE ACTIVITY.

Whether you are going to function well or indifferently as a doctor, there is no doubt, as I said just now, that medicine affords a very good field for the activities of a free man, and this whatever his bent turns out to be. Does he desire large commerce with his fellows? Medicine gives him this in full measure.

Is he attracted by the operation of law in the scheme of nature? He will find ample scope for the study of it here. Does he love beauty, in form or in design? This also is here. Does he crave for sport? In medicine he can track down his game, no less exciting because it is very small rather than very big. Does he delight in stratagem and tactics? Here he can decide how the enemy is to be defeated, where to mobilise and combine his forces. Medicine provides a life alike for the scholar, the recluse, the man of action. Some of you will branch off into physiology, some into biochemistry; some will probably settle down in the bacteriological laboratory as a permanent pursuit; some will marshal an army of preventive measures against epidemic disease. Work in all these fields is of vast interest to the worker and of enormous importance to medicine. I am not, however, concerning myself so much to-day with those of you who will take up these special branches as with the main body, who will leave their alma mater and go amongst men and women to heal them of their diseases. To return, then, to this question of good doctors. Of course, you know already that the ease or the difficulty you experience in passing your examinations is no guide to your future success. So you need get neither cheered nor disheartened on that account. We are all familiar with the man or woman who scores heavily with an examination paper, yet can scarcely say boo to a goose in the sick-room. But I remember the man I coached for the longest time when I was a demonstrator. I coached him so long that I feared for my reputation, and declined to coach him any more. Then I yielded to his father's solicitations, and coached him again, a little fascinated, I think, by the peculiar difficulty of the case. Twelve years this particular "chronic's" curriculum lasted, but at length the Society of Apothecaries received him into its Hall. My pupil turned out to be a most excellent doctor and a very successful one. When I saw him a few years after he left hospital, he had an assistant and a very thriving practice. Nor do I attribute his success to his having married the undertaker's daughter in the town where he set up his plate. I attribute it rather to a considerable knowledge of the world, an unvariable courtesy, a cheerful manner, a gentle voice, and a resourceful mind. In the hospital wards I have seen him talking familiarly with the old folk, and little children, when he approached them, would drop their dolls to smile at him.

So do not think too seriously about those examinations. I know what a nightmare they can be, and how many of the best opportunities of your student days are irretrievably lost on account of them. I wish we could do without them altogether; but they seem to be a necessary evil. You must do all you can to banish the paralysing fear that they create in the mind. Try and believe that, more and more, the examiner concerns himself to see that your methods are good, rather than that your diagnosis is correct. He knows from long experience that, given good methods, all else is bound to follow. So I would say to you who are beginners: Watch your teachers' methods; what they *do* is more important even than what they *say*. Note how they approach the case and how they handle the patient's mind as well as his body. Note also that it is always with them eyes first and much, hands last and little. See how thoughtfully and how patiently the history of the patient's complaint is taken. A good history takes the experienced observer a long way on the road to a diagnosis. Be accurate with your facts; avoid loose terms of speech: "nearly" and "about" and "I think" are the stigmata of a lazy mind. Don't say the temperature is very high, or the pulse rather slow; say the temperature is 105·2° and the pulse is 66 to the minute. Do not forget that the best introduction to the study of medicine is a primer of logic. And, though your reading is important, remember that the patients are more important still. In the words of Trousseau, "Il faut voir, toujours voir, des malades."

THE CROWDED CURRICULUM.

The medical curriculum is much too crowded; your teachers lament the fact quite as much as you do. Any one of them has just got time to help you to use terms correctly and to begin to observe when you are whisked off to a colleague for tuition in another subject. It would be good to teach you how to think, but there is no time. I should like to see some unloading of this overburdened curriculum, but so far the powers that be give no sign. Something seems to bar the way; vested interest perhaps. Subject after subject has been added, but nothing seems to have been taken away. Perhaps nothing should be taken away, but rather a drastic revision of the early subjects be made. For it is clear to me that the place to unload is at the beginning and not at the end. Although in a sense it is not your problem, yet you will, perhaps, forgive me if I tell you my ideas on this subject. Moreover, I may not get so good an opportunity again! The revision should, in my opinion, be undertaken with the idea of making everything concentrate upon the study of the sick person. I would teach students to examine blood in the physiological laboratory by the same method used in the wards, and I venture to wander from my own strict province and suggest that the jugular vein might be exposed in the rooms by the same dissection used by the surgeon to tie it in life. I would pursue the same plan in relation to all functions and all structures. I sometimes wonder if it has been a gain to the teaching of students that we have pure physiologists and pure anatomists at the head of these departments instead of physicians and surgeons as formerly. I should be very jealous of including anything in the preliminary subjects which cannot be dealt with in such a way as to have a direct bearing upon clinical and pathological work. I would familiarise the student in the physiological room with several methods and instruments which he will use in the wards, but which, if I may judge by my own experience, he rarely masters properly—the ophthalmoscope, the laryngoscope, the stethoscope, and blood-counting instruments. Is not the fundus occuli a natural object for study, and how does one see it except with the ophthalmoscope? But if I ask my clerk to look at an example of optic neuritis he excuses himself and says that he has not yet "done eyes"; yet it is quite likely that he knows a great deal about the theories of colour blindness. When a student arrives at the stage towards which all his studies should tend, and begins to practise, would it not be a good exchange, to have omitted a study of the minute structure of the organ of Corti, and to have learnt how to see the membrana tympani clearly? I would introduce the simpler principles and methods of bacteriological technique into the teaching of physiology. The student knows all about the presence of a minute trace of potassium sulphocyanide in the saliva, and how to test it—an old and valueless fact; but quite often he cannot tell you anything at all about the bacteria in the same secretion, though these have an importance in his work which nothing can exaggerate. And so also with the flora of the normal fæces; the subject is regarded by the student when he enters the wards, and long afterwards, as a mystery, and knowledge about it is deemed a perquisite of the bacteriologist.

Neglected Subjects.

In some way or other I would modify the first part of the medical course so that the student is better material when he enters the wards, out-patient rooms, or post-mortem room. If he is better material he will learn more readily and make more use of his opportunities, and this will be equivalent to a gain of time for these, his most important years. And he badly wants more time. He wants it, not only to relieve the congestion during these years, but also because there are two or three subjects that have lagged considerably behind the times and are in need of recognition.

1. One of these subjects is *dietetics*. It is an astonishing fact that in this country—perhaps more

than in any other—hundreds of doctors are qualified to practise every year with little more than two ideas about diet. One of these ideas is a remnant of their physiology days, when they were taught the five ingredients of food essential to life; and the other idea—whose origin I do not know, it is certainly legendary—is the fixed belief that if a patient is acutely ill, whatever the nature of his malady, milk is the thing to feed him on. Now, the first of these ideas is not of great practical value in the treatment of disease, because Nature has anticipated the physiologist in her instructions. The second idea does sometimes fit the case, but it gets so strained in its application at other times that the results are frequently somewhat disastrous. Whatever the ultimate outcome may be of the present interest shown in "toxic idiopathies" and in "vitamins," there will be at least one important issue, and that is that more attention will be given to diet in disease.

2. The second subject which I regard as demanding more attention in the compulsory part of the curriculum is *Infection*. Not that smattering of bacteriology which is nowadays required of the student at his final examination, but a proper enlightenment on the sequence of changes taking place as the result of interaction between an infecting organism and the body tissues and functions. Considering the enormous importance and the great frequency of these events, it is, once more, astonishing how little room is given to the subject in the medical course. There is to-day an accumulation of important facts—the theories may be omitted—in this connexion which the student should be required to know.

3. The third subject that lags behind is *Psychology*. I doubt if psycho-analysis, as we see it, would have arrived had the practitioner recognised the importance or been capable of investigating the psychological side of his patient's case. And I feel quite sure that the only cure for the more pseudo-scientific aspects of psycho-analysis will be the inclusion, in recognised form in hospital practice, of psychological methods. It is rather strange when we come to think of it, that we teach the student elaborate physiology of many functions of the body that are relatively unimportant, and entirely omit to teach him any physiology of the most important function of all—namely, the mind. The practitioner, in many instances, learns these things for himself, but only after much painful experience; and even then he misses the great advantages that might be given him by inclusion of elementary principles.

PRIVILEGES OF QUALIFICATION.

And now let me suppose that you have finished all this preliminary training, and that you have satisfied your examiners that you are ready to begin the more serious study of medicine proper. In other words, you are qualified to practise. With the granting of your degree certain privileges are accorded you: you may sign a death certificate, you may sue for fees in a court of law, you are excused attendance upon juries, and your horses may not be taken for the fire brigade. Since none of us keeps horses any longer, the last-named ancient exemption, obviously framed more in the interest of the public than of ourselves, scarcely interests us. Non-attendance of medical men upon juries seems clearly to have resulted from the frequent interruptions suffered by learned judges owing to the doctor being summoned for some sudden emergency, and therefore this privilege again is a benefit for others rather than for us. To sue for money that one has earned, and to get justice, is no more privilege that is expected by every citizen of a properly governed community. This benefit appears to have been specified because *un*qualified practitioners may *not* sue for fees. But inasmuch as these gentlemen always take care to be paid for their services in advance, the benefit is actually more in their favour than in ours. Signing a death certificate is asking for all sorts of trouble, for the doctor who signs one may at any subsequent time find himself called upon to swear to all the particulars in a coroner's court. On the other hand, having signed it, there is no compunction whatever on the part of the coroner to accept it. This state of things is recognised to be so anomalous that a medical man is under no compulsion to sign a death certificate at all. Nor do I suppose that any wise man ever would, were it not that declining to do so places the friends of the deceased in an impossible position. For the same law which has made no proper provision for the certification of death, on the one hand demands that the undertaker shall not function without it, and on the other compels the friends to dispose of the body, in which, to make matters still more confusing, it is specifically declared there is no property.

So much, then, for the "privileges," euphemistically so-called, accorded by law to the qualified medical practitioner. With all the legal privileges the other way the wonder is that anyone takes the trouble to get qualified at all!

Vain Argument.

But, anyway, here you are at length with your well-earned degree. Its registration at least gives you some legal cover in case of accidents, provided you can satisfy the court that you have exercised "reasonable care and skill"—and the interpretation of the word "reasonable" need not give you over much concern. I think you are, in actual fact, and take you all in all, perhaps the best educated and best trained man amongst your fellows. But you must not think that this will be generally recognised. On the contrary, quite a large number of people, who have had no training at all, will argue medicine with you both in its art and in its science, and will treat you as though you have no expert knowledge whatever. They will quote their equally lay friends, and books written by equally lay authors, proving conclusively a large number of "facts" that your teachers and you yourself know to be the wildest imaginings. And they will express surprise that you are so out of date. "What, you haven't read Mr. Knowall Things' book on cancer, in which he proves that if you keep yourself fit and attend to your bowels you won't get the disease?" "No, who *is* Mr. Knowall Things; hasn't he written about economics or something?" "Yes, but don't you think, doctor, that he has studied this question thoroughly?" "No," you will say, "I'm afraid I don't. You see, the problem of cancer isn't touched by a recital of all these trite details of your author as to the value of fresh fruit for breakfast and the avoidance of constipation. The problem of cancer is not why it affects the unhealthy, but why it attacks the healthy. But if Mr. Knowall Things really wishes to benefit humanity let him hand over the proceeds of his book to the British Empire Cancer Campaign, or some equally good organisation, so that men who are properly trained and equipped for research may get on with the problem." Then there is Mr. Blank, the distinguished novelist, and Mr. Nought, the playwright, and there is an eminent divine, and a politician, and a newspaper proprietor—all of them ready to tell you exactly what is wrong with your patient, and exactly what should be done for him, even if they are not writing books and articles on the exact causation of what are to you obscure diseases. Well, you must never lose your sense of humour; you must remember that all this is part of the comedy of things. There is even food for psychological study in it, for underneath all this misdirected interest in the diseases of their friends, in disease in general, and especially in cancer, does there not lurk the unacknowledged fear that the dread scourge may some day count these folk amongst its victims?

EXIGENT PATIENTS.

Since you will find your time very fully occupied with your work, and since it is my duty to help you to save as many "grains of the golden sand" as possible, I advise you to learn early how to give all these people a short shrift; you will then have more time for those choice spirits who actually consider that you know more about diseases and their treatment

than they do, and also for these tiresome folk too, when they themselves fall ill and need you. You must be so jealous of your time that you will grudge it for another class also, and that is the people who would like you to live their lives for them. They do not, of course, put it like that when they come to see you, but that is what it amounts to. Of course, you cannot do it, and it would be very bad treatment if you could. It is a law of our existence that every one of us must live his or her own life separately. Merging our being in that of the doctor is not life but parasitism. Some of these patients you will find have no exigency in their day, and without exigency none of us can be healthy. Exigency you will find to be an invaluable prescription. To have to do something at 9 o'clock every morning, which, not being done, you are yourself (if you are selfish), or your friend (if you love him) is left hungry or unhappy—that is apparently one of the laws of health. Well, these patients whom I have in mind do not conform to this law, and they fall ill, and they come to you because, as they say, they have heard how clever you are. They have already seen many doctors and they have had many treatments, and so far no one has been able to diagnose their case. They are so anxious to be well and like other people. And they finish by saying, "What are you going to do about it, doctor?" In as kindly a way as possible you explain that there is no "it," and that *they* and not *you* must do things about it if they really want health. Some of them have got into a tangle with their emotions, or their undisciplined emotions (for their mothers were often as foolish as they) have landed them in a hopeless mess with their affairs, domestic and otherwise. The symptoms they relate, and the obscure disease they attribute their unhappiness and unfitness to, are but an unrecognised disguise for an emotional stirring that is still unsatisfied. Some of them really do suffer from a slight, perhaps physically incurable, handicap which is enormously overloaded in their mind by a nexus of depressing, though mentally absorbing, ideas. They memorise ancient troubles: the operations they have had were the most difficult of their kind the surgeons ever had to perform; their diseases had all the known complications and some others; recovery was several times despaired of; "so it's not surprising, is it, doctor, that I suffer so much?" Again you try to be of help, though experience soon teaches you that it is not certain if, in some of these cases, help that is successful would be welcomed. Anyway, it is always *you* who must do the energising and the activating. I was explaining to one of these patients recently that, in my judgment, it was her attitude towards her trouble that required altering rather than that the trouble itself needed attention. To which, with a look of complete confidence in my discrimination, and with a bland smile, she said, "Will you *treat* me for my attitude, doctor?" Lastly, there are the patients who have not made up their minds if it is better to be well than ill. You must get the decision clearly and convincingly made before you embark upon treating these.

LAWS OF CAUSE AND EFFECT.

My advice to you is to tell your patients as clearly as you can why they are ill, be the illness physical or mental. Point out to them that certain results have followed the operation of the laws of cause and effect, and that these results are the things they wish you to relieve. It is sometimes necessary to remind them how immutable, how inviolable, are these "Chancellors of God" as Emerson called them, adamant if broken, but beneficent if obeyed. Tell them how best they can re-trace their steps and help them all you can. But do not argue with them, or get heartaches because they do not take your advice. That you are bound to do, of course, at first, but it is a juvenility that disappears with the years. I tell you these things because I want to save time for you if I can, and I wish to get you to maturity earlier in your career than I am doing. The sooner you mature the greater your value to the world. Do not think me cynical about certain types of patients. Thank God, they will be in the minority. That is, unless you prove to be one of those persons who possess a subtle attraction for the tiresome people I have mentioned. Then my best advice to you is to take long and frequent holidays and to go abroad for them. And you should put on duty the colleague who is the keenest golfer in the district. No, most of your patients will really need your help, will loyally observe your advice, and will try hard to regain their health. You must give them all your knowledge, all your skill and all your time ungrudgingly. Some of them will rely upon you; to these you must give yourself in addition, for these you must, if necessary, sweat blood.

What experiences will you not have! What wealth of material for the study of human nature will you not meet! In what unique situations will you not find yourselves! In all these things you will, if you are wise, still be the student and still the observer. You will watch the play of men's passions: love, envy, avarice; you will see the havoc these elemental forces can wreak upon their physical as well as upon their moral health. You will meet men and women whose cases puzzle you until you realise that they are ill because of a fruitless remorse or because of a baffled ambition. You will discover that there are, after all, such things as broken hearts, though there are no "physical signs" of disease, and "graphic records" point to no defect. You will see men enervated by the intoxication of success or stimulated to robust health by the smart of failure. You will be able to trace association between physical and mental idiosyncrasies on the one hand, and domestic relations, business habits, political exigencies, and even religious emotion on the other. You will often be able to interpret men's weaknesses, and your knowledge will make you charitable; you will sometimes understand their strength, and your insight will increase your admiration. The streak of genius that attracts your worship will also evoke your warning. You will be privileged to add not a little to the world's progress and happiness by steering the activities of some who are but poor navigators of their own ship, yet who carry a precious freight, whether it be the power to lead men wisely or to charm away their griefs.

THE TRIUMPH OF PRINCIPLES.

You will find medicine a jealous mistress, but you have chosen her, and if you serve her loyally she will return your devotion in full measure. This does not mean that you will lead small, ignoble lives. You will follow George Wyndham's dictum: "If we cannot make our lives long, let us make them broad." Indeed, that is a part of your duty. You will need all the antennæ that you can develop so that you can touch people at many points. All this you can do and still be your self, made wise by fusion with life, so that you become an artist and not a mere technician. In your work, however, though you will be tempted to diffuse, you must concentrate. Politics, literature, art—each one will say to you, "Come out and try us," but you will decline. More subtle will be the temptation to stray into some by-way of medicine itself, something that promises the panacea that men crave for. You will resist this also. You will be chary of the short cut, the royal road, and the leap that science, no more than nature, never takes. Always you will keep an open mind. It will be well if you add to your daily prayer: "Save me from obsessions." You will remember that, just as in life nothing can bring men peace, so in medicine nothing can bring them health, but the triumph of principles. This thought reminds me once more of Sydenham, and I cannot more fitly end these remarks than with another quotation from him. He is concluding his "Epistolary Dissertation," and he says, "And now, worthy Sir, I desire you to accept this small treatise favourably which was designedly written to return you thanks for your approbation of my other works. And indeed, I have so seldom received anything like approbation, that either I have merited no such thing, or else the candid and generous men whom nature has framed

with such excellency of mind as to know how to be grateful, are very few, ... yet, notwithstanding, I endeavour all I can and will do so, to learn and promote the method of curing diseases, and to instruct those who are less conversant in practice than myself, if any such there be. Let other people think of me what they please. For having nicely weighed whether it is better to be beneficent to men or be praised by them, I find the first preponderates and most conduces to peace of mind. As for fame and popular applause, they are lighter than a feather or a bubble, and more vain than the shadow of a dream."

Special Articles.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

St. Andrews Institute for Clinical Research.

AT the opening of the winter session Dr. Maitland Ramsay delivered his inaugural address as Director. There was a large attendance of practitioners from Fife and from Dundee. Dr. Ramsay referred in grateful and feeling terms to the founder of the Institute, Sir James Mackenzie, and expressed gratification that though he was no longer present his name was still associated with the Institute as its President. He dealt with the general principles of clinical research as enunciated by Sir James Mackenzie and with the fact that the general practitioner has continuous opportunities of furthering the knowledge of disease by clinical observation in his practice. He particularly emphasised the importance of clinical observation and commented on the tendency to neglect this primary function of clinical medicine and to rely upon laboratory reports in its stead. While these were of inestimable value they could never replace that accurate observation and weighing of clinical symptoms upon which the older physicians relied. The value of the sensations experienced by the patient was often underestimated, but as a clinical ophthalmologist he could assure his audience that these were of the utmost diagnostic and prognostic significance in diseased conditions of the eye. He drew a close parallel between the symptoms of eye-strain and the sensations and disabilities experienced by patients suffering from cardiac inadequacy. Dr. Ramsay hoped that his audience would take full advantage of the facilities of the Institute for recording their observations. Dr. C. E. Douglas (Cupar), secretary of the Fife Medical Association, urged his audience by their coöperation to ensure the continued success of the Institute.

Royal Medico-Chirurgical Society of Glasgow.

The opening meeting of this Society was held on Oct. 3rd, when Prof. Archibald Young delivered his presidential address on the Limitations of Surgery, Past and Present. In introducing his subject the President declared himself to be far from taking a gloomy view in his outlook on surgery as, perhaps, the title might suggest. Rather was his aim to indicate the directions in which surgery as a science might progress and the lines along which further research might most profitably be pursued. In the course of a short historical survey of the earlier surgical achievements he referred to an interesting address by Erichsen in 1886, in which the following pronouncement occurred :—

> That the final limits of Surgery have been reached, in the direction of all that is mechanical and manipulative, there can be, I venture to think, little doubt. . . . We have thus reached, in many of our most important operations, the final limit to which Surgery can be carried. . . . Art is final, but Science is illimitable We have reached finality in the mere mechanical Art of Surgery, both as to the expansion of its limits and the precision of its practice. But we are yet on the threshold of the Science of Surgery.

While such a pronouncement, said the President, made over 40 years ago, and by one of the foremost surgeons of that day, could not, in view of the notable advances in operative method and technique since that time, be accepted as even approximately correct, it contained, nevertheless, more than a grain of truth, and it emphasised the separate rôles, and the very different outlook of surgery, the purely technical art, and surgery, the science. The field of cranial surgery was chosen to illustrate some of the victories over the restraints and limitations which had rendered progress difficult, if not impossible, and reference was made in particular to what were perhaps the greatest of such victories—namely, the discovery and elaboration of anæsthetics and the conquest of microbic infection by the introduction of antiseptic practice and technique. The President then outlined a few of the limitations that yet remained to hinder the advance of the science of surgery—the problems of repair of tissues—the manner in which the organs functioned, and the question of periodicity as a fundamental mode of action—tumour growth—the action of X rays, radium, and irradiation, and many other such problems, and urged the necessity for combined research by all concerned. "Before we can hope to set aside materially the restraints and limitations that still remain, we shall have to adopt all sorts of lines of research. We must adopt in the most unselfish spirit a generous and all-embracing system of collaborative research, by which the experience, enthusiasm, original thought, and varying points of view of many workers, not only in pure surgery but also in all the allied sciences, may have cumulative weight."

Welfare of the Blind.

The second report of the Scottish Advisory Committee on the Welfare of the Blind [1] which has just been issued covers the period 1921–24. It is signed by Sir David Paulin, chairman, and Major Sir William Reid, vice-chairman, on behalf of the Committee, which includes representatives of public authorities, voluntary agencies, and blind workers. This Committee was set up shortly after the passing of the Blind Persons Act, 1920, to advise the Scottish Board of Health on the care and supervision of the blind in Scotland. There are, the report states, 6054 blind persons in Scotland on the Central Register kept by the Board of Health. Of the total number of registered blind, 399 are under 16 years of age and 3627 are over 50. (The latter, in respect of age, are eligible for blind pensions.) The Committee record with pleasure the striking decrease in the number of blind children under 5 years of age, from 48 in 1920 to 15 on April 1st, 1924 ; 3650 blind persons, or 60 per cent. of the total number of blind in Scotland, are unemployable. The report discusses and makes recommendations on many varied subjects, recommendations which have been extensively adopted by the Board of Health and are now the accepted policy in Scotland. On the question of municipalisation the Committee state, "The general view held by us was that municipalisation of institutions for the blind was a question for the future rather than for the present. The view was also expressed, however, that the passing of the Blind Persons Act was an admission of the failure of voluntary effort, and that provision for the blind should be made entirely by public authorities and not be left to charity. By a majority we agreed to recommend that as a general principle the municipilisation of workshops for the blind is not at present desirable."

Amending Legislation.

The Committee disapprove of the Blind Persons Act (1920) Amendment Bill, as drafted, and they submit an alternative scheme of amending legislation. In the Committee's opinion new legislation must deal principally with the problem of the unemployable and necessitous blind. They recommend that a graduated compensation allowance of not less than £1 a week should be granted to blind persons within a prescribed means limit and that this allow-

[1] H.M. Stationery Office, 120, George-street, Edinburgh. 1s.

ance should be paid to the capable and incapable blind alike. The graduated scale starts with the maximum allowance of £1 a week where the means of the blind person do not exceed £105 a year and ends where the means exceed £199 10s. a year. The Committee recommend that two-thirds of the cost of the compensation allowance should be met by the State and one-third by the local authorities, and they estimate that the net additional annual charge for Scotland, on the basis of £1 a week compensation, would be £113,000 on the State and £86,000 on the local authorities.

Post-Graduate Medical Teaching in Glasgow.

The teaching scheme of the Glasgow Post-Graduate Medical Association is divided into three groups—namely, weekly demonstrations, special courses, and clinical assistantships—and the syllabus for the forthcoming winter session has just been issued. The series of demonstrations at the various hospitals on Wednesday afternoons has been arranged on similar lines to those of former years. Three special courses will be held on medical ophthalmology, conducted by members of the staffs of the Eye Infirmary, the Ophthalmic Institution, and the general hospitals; on the Mother and the Newborn Infant, under Prof. J. M. Munro Kerr, Prof. Leonard Findlay, Dr. S. J. Cameron, Dr. James Hendry, and Dr. J. N. Cruickshank; and on Fractures, under Mr. George H. Edington and Mr. Charles Bennett. A limited number of clinical assistantships, for periods of three months, is available at certain of the institutions taking part in the work of the Association. Copies of the syllabus and further particulars may be had from the Secretary of the Association, the University, Glasgow.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Royal Academy of Medicine in Ireland.

THE annual general meeting of the Royal Academy of Medicine in Ireland was held last week. Sir James Craig, King's Professor of Medicine in the School of Physics, was elected president. Prof. F. C. Purser was elected president of the Section of Medicine, Mr. R. C. B. Maunsell of the Section of Surgery. Most of the other officers are unchanged. The report of the council for the year 1923–24 stated that during the session 1923–24 the Academy consisted of 193 Fellows, 13 Members, and 26 Student Associates, an increase of 20 Fellows and 6 Members over the previous year. Having noticed the loss by death of three honoured Fellows, Wallace Beatty, Alexander C. O'Sullivan, and Sir Andrew Horne, the report records that the urgent need for the provision of facilities in Dublin for research in connexion with medicine and the allied sciences had been brought before the council. A conference of the various licensing corporations in Ireland was invited to meet the members to discuss the matter. At that conference a scheme for the establishment of a research institute was drafted, and the draft has been submitted to the various corporations which were represented. As soon as the approval of these bodies has been received it is proposed to submit the scheme to the Government. The council has good grounds for believing that the scheme will be adopted, and hopes that in the next report it will be possible to speak of the actual establishment of the institute.

Tuberculosis in Belfast.

It is only ten years since the Belfast Corporation put into operation the existing scheme for the prevention and treatment of tuberculosis, and the results achieved are noteworthy. The number of new cases examined at the various centres during the year 1923 shows an increase of 227 on the previous year, this increase being probably attributable to greater care in notification. The death-rate in the city from pulmonary tuberculosis during 1923 has fallen for the fifth year in succession, and now stands at 1·3 per 1000, a reduction of 51 per cent. as compared with 1918, and of 72 per cent. as compared with 1890, when the death-rate was 4·7 per 1000. This affords some grounds for satisfaction, as the chief tuberculosis officer states in his annual report. A slight fall also occurred in the death-rate from the non-pulmonary forms of tuberculosis, which now stands at 0·3 per 1000, as compared with 0·36 in the previous year. The ratio of pulmonary tuberculosis to other forms of tuberculosis was 72 to 28. Of the 1151 patients found to be suffering from tuberculosis during the year 420, or over 36 per cent., had had personal association with tuberculosis amongst other members of their own families. In only 20 cases, or less than 5 per cent., was the relationship that of husband and wife. The report believes that "the most fruitful source of infection in children is probably through food and table utensils, and experiments have shown that not only tubercle bacilli but other infectious germs may be conveyed on the surface of tableware, such as cups, plates, knives, spoons, &c." The necessity for extreme cleanliness is emphasised. The nurses visited 902 homes with tuberculous patients. Of these 131 were reported as "good or very good," 567 as "average," 135 as "bad," and 69 as "very bad" or "exceptionally bad." On the whole, these figures suggest that the housing conditions in Belfast are relatively good compared with many other cities. Tenements hardly exist. The result of pregnancy in 1624 tuberculous mothers is recorded. Of these 129 miscarried, 1451 were delivered of a living child at full term, and 44 were delivered of a stillborn child at full term. Dental treatments were given to 1022 patients. An active educational propaganda was carried on during the year. The number of discharged soldiers treated during the year was 359. The open-air school for children living in contact with patients suffering from tuberculosis has been in successful operation, the number of children in attendance being 116.

A Charge of Bribery.

Last week Thomas Moran, a member of the dissolved Roscommon County Board of Health, was at Boyle remanded on bail on a charge of having solicited from Dr. McDonnell, a candidate for the position of medical officer of Kiltoom dispensary district, a bribe for his vote. Mr. Neilan, State solicitor, recalled that as a result of a complaint an inquiry was held by the Local Government Department. The election, in which Dr. McDonnell was defeated, was set aside and the Board of Health dissolved. Dr. McDonnell described how he met the accused in a hotel in Elphin, and asked him for his vote. "He replied," said witness, "he would be at a great loss if he voted for me; that there were between £400 and £500 being spent on the election, and that if I gave him that amount he could have me elected. He also said he would require £50 for his own vote, whether I won or lost."

THE "MILITARY SURGEON."—Col. J. R. Kean, of the United States Army, has been selected as the new editor of the *Military Surgeon*. On his retirement in June last, after 40 years service in the Medical Corps, he received a letter from the Acting Chief of Staff of the Corps Area, in which he was serving, expressing regret that he (Col. Kean) was retiring, and summing up his distinguished career, observing that he had been "a controlling influence wherever placed," that he had displayed signal abilities as chief surgeon of a corps in the war with Spain, that as chief sanitary officer in Cuba his service in the eradication of yellow fever had been of exceptional value, and that the Army Medical Department had gained repute owing to his advocacy of a Medical Reserve Corps (1908), and through his organisation of the American Red Cross base hospitals, and the U.S.A. Ambulance Service for duty with the French Army in the late war.

MOTOR CARS AND ACCESSORIES FOR 1925.

THE SHOW AT OLYMPIA.

BY J. MARSHALL, M.I.A.E.,

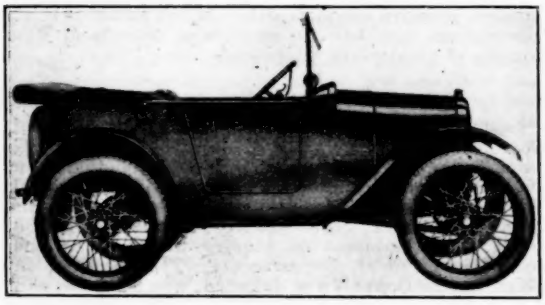
LONDON MANAGER OF MESSRS. MANN, EGERTON AND CO., LTD.; OFFICIAL CONSULTING ENGINEER, MEDICAL INSURANCE AGENCY.

AMONG ardent motorists no political crisis can overshadow the importance of the Olympian motor show. It is likely to be as well attended as it was last year by eager amateurs. The best time to visit the show is quite early in the morning, between 10 and 12, and by those who can spare time on working days Saturdays should be avoided. The notes I have made on various types of cars which have proved popular in the past among medical men must be regarded merely as an indication of stands that should not be missed, certainly not as an exhaustive guide to a magnificent but somewhat unwieldy exhibition. Experienced motorists will know where to look for novelties and value; novices can only be urged not to buy blindly, but to reserve their choice if bewildered by the mass of good cars arranged for their inspection until they have sought the advice of an impartial expert. With these reservations I would suggest that visits be paid to the following stands.

Motor Cars.

Austin Motor Co. (Stand No. 141).—The Austin range of cars for 1925, at considerably reduced prices, comprise the well-known models of 20, 12, and 7 h.p., the principal alteration to the larger cars being the addition of four-wheel brakes and the introduction of a new 20 h.p. chassis with a very low frame, intended to facilitate entrance to closed bodies. This new frame is heavier than the old one and possesses a higher curve over the rear axle, where a larger spring deflection is given. Its advantages are particularly evident on the new "Carlton" saloon. A point of special interest on this and other bodies fitted on this chassis is the "all metal" framework which has been adopted in place of the usual wooden members; the body platform, stay supports, and, in fact, all parts generally made of wood are now being constructed of steel, which is claimed to provide a frame some 25 per cent. lighter than a wooden one. The 12 h.p. model is practically the same as last year, with the addition of four-wheel brakes. The four-wheel braking system adopted is a simple one, designed by the makers of the car; the front wheel brakes and their actuating mechanism are fitted as a complete unit, independent of the frame. The front brakes are compensated in relation to those at the rear; the compensation is located immediately beyond the pedal connexion and incorporates a hand adjustment, whilst the hand lever applies shoes to the drum mounted behind the gear box. The 7 h.p. Austin model has been improved in appearance, slightly enlarged, and modified in some minor respects (see Fig. 1). Recent success in the 200 miles race at Brooklands has proved that these little cars can stand a vast amount of hard work at high speeds. The following models can be seen on the stand: Touring car, £355, and "Windsor" saloon, £475, on 12 h.p. chassis; "Carlton" saloon, £675, and "Mayfair" saloon, £795, on 20 h.p. chassis Austin "Seven" touring, £155, and chassis, £120.

FIG. 1.



The "Austin seven" new model.

A.C. (Stand No. 18).—These cars are worth a visit; they are built on graceful lines, well proportioned, and the bodies are well constructed and extremely comfortable. The chassis is a creditable feat of engineering, and this make of car presents undoubted value at prices from £275 upwards. The engine (both four- and six-cylinder) is a sweet-running unit, and the braking power is unusually good; generally it will be found that the comfort of the owner-driver has been studied in many ways.

Standard Motor Co. (Stand No. 211).—As one of the oldest British makes these cars are always interesting, both for their attractive prices and bodywork designed to give roominess and comfort; designs show very slight modifications of last year's models. The 11 h.p. two- and four-seater at £235, the 11 h.p. "Weymann" saloon at £375, and the 14 h.p. saloon at £475 present excellent value.

Sunbeam Cars (Stand No. 98).—The prices of the 12/30, 14/40, and 20/60 h.p. (open car) remain unaltered. The enclosed types of the 20/60 h.p., however, have been increased slightly in price. Considering the quality of the product, the prices are not unduly high, since for reliability and general excellence of workmanship the Sunbeam models can scarcely be beaten. With the exception of the 12/30 h.p. all models are fitted with four-wheel brakes, and "Weymann" fabric bodies can be had for the 12/30 and 14/40 h.p. chassis.

Calthorpe Cars (Stand No. 86).—The 12/20 h.p. two- and four-seater, 12/20 h.p. saloon, and six-cylinder 14/45 h.p. models are being shown. These cars attract by reason of moderate prices and excellent coachwork. The saloon at £425 is worth close study, for it is roomy and well finished, and the 15/45 h.p. six-cylinder bristles with up-to-date ideas, while the touring model can be considered as giving excellent value at £395. The petrol consumption of the Calthorpes is extremely low, the 12/20 h.p. doing some 30 miles per gallon.

Bean Cars (Stand No. 89).—The exhibit comprises examples of the 12 and 14 h.p. The prices are practically the same as last year, but extra equipment is now included. The four-wheel brakes are of the "Perrot" type; balloon tyres and hydraulic shock absorbers on back and front axles are provided and on the touring models a windscreen for the rear seats. The prices are: 12 h.p. two-seater touring, £335; 12 h.p. four-seater touring, £345; 12 h.p. two-seater coupé, £395; 14 h.p. touring, £395; 14 h.p. saloon, £525. These cars are solidly built and the bodies are capacious. They will give continuous service over periods of prolonged hard work.

Fiat Motors (Stand No. 129).—These cars are essentially the same as last year. There are some minor modifications; for instance, the 10/15 h.p. has certain improvements to its electrical auxiliaries, and the longer chassis introduced last year has its steering column less raked, in order to give plenty of space for closed bodies. Prices are unaltered from those announced in August. These cars present remarkably good value.

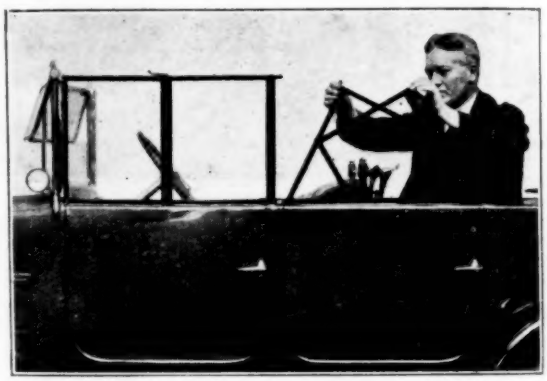
Hillman Cars (Stand No. 167).—At £358 for the two-seater and £375 for the four- and five-seater, with patent all-weather bodies, Hillman cars show slightly increased prices, but with extra equipment and refinement they are well worth their present cost. The body has been widened considerably. 28-inch Dunlop cord balloon tyres and a comprehensive list of accessories are included.

Citroën Cars, Ltd. (Stand No. 23).—Notwithstanding the substantial decrease in price made a few months ago, further reductions have now taken place, and in addition numerous accessories are included. The Citroën, always reliable and reasonably priced,

now gives wonderful value. The 7·5 h.p. with two-seater body costs only £145, the 11·4 h.p. English body four-seater £250, and the four-seater saloon £295. These are complete with balloon tyres, clock, speedometer, Boyce motometer, driving mirror, automatic windscreen wiper; and on the touring models folding rear windscreen. The French-built bodies are not very comfortable, the seats being too high in relation to the size of the body, but the English bodies are extremely well finished and will make a wide appeal.

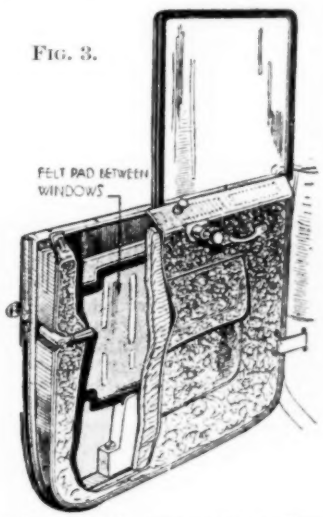
Humber, Ltd. (Stand No. 128).—Three models are now being marketed; the 8 h.p., the new 12 h.p., and the 15·9 h.p. These cars for a number of years have been noticeably well finished, and this year's models are up to standard. The new design of the all-weather side screens is probably unique; the screens can be screwed downwards and concealed in two or three sections in the curved side lines of the doors and body. The celluloid panels are fitted under compression in narrow metal frames to prevent buckling. These panels are formed over the doors and sides of the body in two halves, and when erect are kept together at the top by spring clips suitably held by a plated screw, so as to form a rigid structure. The method of storage and the appearance when up is clearly shown in Figs. 2 and 3. This system should solve many of the troubles now experienced in connexion with the ordinary type of all-weather fittings. The prices are: 8 h.p. from £240; 12 h.p. from £440; 15·9 h.p. from £630.

FIG. 2.



Method of raising and lowering side celluloid panels in Humber touring models.

FIG. 3.



Showing cavity in door where the Humber celluloid panels are housed when not in use.

Daimler Company (Stand No. 170).—What is termed by the makers "the largest car in the world" is shown—i.e., the 57 h.p. chassis, which was designed and built during the present year for the use of the King. One of the admirable qualities of this car is the very low entrance. The complete range of models shown is as follows: 16, 20, 25, 30, 35, 45, and 57 h.p., all of them with the Daimler six-cylinder sleeve valve engine, and worm and wheel back axle. In addition, the 10, 14, and 16 h.p. B.S.A. are on view. Much of the exceptional silence that characterises the running of these cars is due to a system of insulating the body from most of the shocks to which the chassis is subject. This is achieved by fitting an independent steel body frame which rests on rubber buffers situated on the top of the chassis. Moreover, the scuttle does not touch the bonnet in any way, so that complete insulation is ensured. Fabric panelled saloons are obtainable on the 35, 25, and 20 h.p. models for £250, and on the 16 h.p. for £160.

Vauxhall Motors, Ltd. (Stand No. 140).—The Vauxhall cars are always of distinguished appearance, and have established a sound reputation in many good road performances. The alterations from last year's types are slight; the 14/40, 23/60, and 30/98 h.p. models continue to be made. Some changes have been effected in the 14/40; a four-speed gear box, wire wheels, and Dunlop balloon tyres are now fitted. The 23/60 h.p. has four wheel brakes fitted as standard. These are of their well-known cable operated type.

Rover Co., Ltd. (Stand No. 173).—This firm have brought out a new 13·9 h.p. two-litre chassis which has many original and up-to-date features. It is capable, in full touring trim, of a maximum speed of 60 miles per hour. At first sight the chassis may seem somewhat heavy and complicated, but in view of the accessibility of the parts this can readily be forgiven. Of the other models, the 8 h.p. two-cylinder air-cooled type is being retained, and also the new 9 h.p. four-cylinder overhead valve. The four-seater body of the last-named car has only one wide door; this gives particularly easy access to the rear seats as the front near-side cushion is hinged forward, and the separate back is swung round so as to rest at right angles to the back of the driver's seat.

De Dion Bouton Cars (Stand No. 212).—The manufacturers are showing various types of their 12/28 and 15/43 h.p. cars. They are among the oldest and most reliable French car-makers, and the De Dion Bouton chassis has always had a good name. A delightfully finished 2/4 seater coupé body is shown here called the "Sportsman." It is very roomy, is fitted with two adjustable front seats, two sliding occasional seats, wide doors, and accommodation is provided for carrying luggage, golf clubs, &c., the cost of this body on a 12/28 h.p. chassis being £695. The prices quoted are, perhaps, a little on the high side by comparison with other well-constructed chassis, but for those who are prepared to pay for the undoubted security of good workmanship embodied in these cars I can cordially recommend them.

Cubitt Engineering Co. (Stand No. 19).—This firm concentrates on one type only—namely, the 15·9 h.p. (tax £16). The production is of particularly robust nature and has an unusually roomy body. By standardisation of one type, the makers have been able to reduce their prices on every model by £60 per car. At the present price the car appears a good proposition.

General Motors, Ltd., Buick (Stand No. 138).—These are among the most reliable and popular types of

American- and Canadian-built cars. They are conspicuous for smooth running and large comfortable bodies. The new 20 h.p. 6-cylinder is an exact replica on a small scale of the "Big Six," which has been running successfully for some years, and it may be relied on to show the Buick qualities of power and dependability. At £395 for the tourer and £525 for a saloon it can be considered cheap.

Unic (Stand No. 178).—These cars are always worth inspection; the 12/23 h.p. French saloon at £495 and the English saloon, or landaulette, at £550, are, perhaps, rather too highly priced. The chassis is, however, reliable, and once the initial cost is over the owners of Unics are, as a rule, well satisfied with their choice.

Leyland Motors (Stand No. 219).—The Trojan shown on this stand will attract attention by its unconventional appearance and design. The principle on which this car is built is peculiar to itself, and has proved quite satisfactory during 18 months' trial under strenuous conditions to many owners, including a large number of doctors. The Trojan has solid tyres, compensated for by special springs and a two-stroke engine which possesses extraordinary pulling powers.

Morris Motors (Stand No. 210).—A crowd will doubtless be attracted to the stand where the wonderful value given in all models made by this firm is demonstrated. These cars are all strong and reliable, and it is only by production on a huge scale that they can be sold at such low prices. Morris cars are a striking example of cars of excellent quality produced en masse, and therefore at low price, by an enterprising firm. They are deservedly popular among medical men. The new reduced prices enable a two-seater Morris-Cowley to be purchased for £175, whereas the most expensive body—the saloon—on a Morris-Oxford chassis can be acquired for £385, including front wheel brakes. Between these two figures any type of car can be purchased and a full insurance (general accident policy) for a year is given in addition to all desirable accessories.

Wolseley Motors (Stand No. 168).—Examples are shown of the 11/22 (late 10 h.p.), the 16/35 (late 14 h.p.), and 24/55 (late 20 h.p.). Prices are slightly reduced from last year, and in addition there is an exceedingly generous accessory equipment. The chassis exhibited vary only slightly in detail from those shown last year. The Wolseley 20 is an excellent proposition.

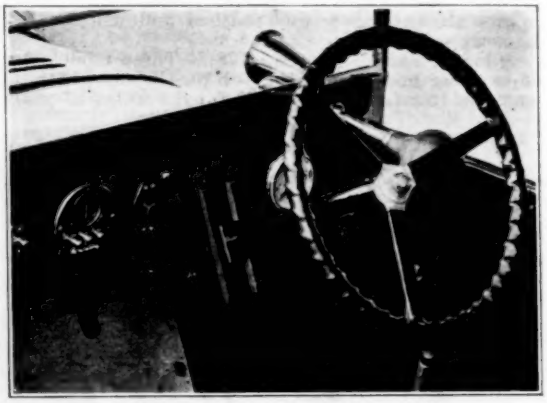
G.W.K. Cars (Stand No. 37).—To the medical profession this car must prove of interest, as they are asked from time to time whether it is possible, or safe, for more or less disabled persons to drive. In this car, specially constructed for the disabled, there is no gear-box, and the speed is varied by the movement of a disc composed of two outer rings of fibre and a centre ring of cork, all three being clamped together in the usual manner, with side-plates and bolts, and at right-angles across the face of another disc. In the model exhibited pedals are absent, both clutch and foot-brake being operated by pulling the steering column downwards (see Fig. 4). Prices vary from £200 for the two-seater, to £225 for the four-seater. Details of the mechanism of this car were given in THE LANCET last April,[1] and I may venture to emphasise the valuable advice then given that a disabled individual should, in his own interests, submit to one of the standard driving tests before taking the road.

Coachwork.

Many new ideas for finishing coachwork in place of painting are now coming on the market, and a remarkably successful finish is achieved by the use of "Carmaloid" made and developed by R. I. Clark and Co., West Ham Abbey, London, E. 15. This substance is a celluloid enamel which is applied simply by pouring the material over the panels out of a spout. The coats dry quickly at normal temperature; after about 20 minutes the enamel is impervious to dust. A body finished with this preparation need never be washed, but merely rubbed with a leather. The friction of dust merely serves as a polish, since the surface is too hard to be scratched. Tar, the removal of which ruins a varnished surface, can be dissolved by a cloth soaked in petrol or benzol, because the celluloid finish is impervious to either of these tar solvents. To the medical man, whose car is almost constantly on the road, this system should make a special appeal when the need for repainting arises.[2]

[1] 1924, i., 885.

FIG. 4.



Control apparatus of G.W.K. cars fitted for disabled drivers. Note the absence of pedals, and the guide for the upward and downward movement of the steering column, which operates clutch and brake.

Offords (Stand No. 122 Coach-building Annexe).—An example of this firm's work will be seen on an 18 Armstrong-Siddeley chassis, consisting of a Coupé de Ville Landaulette. The workmanship and general finish will be found good and the price reasonable.

Mann, Egerton and Co., Ltd. (Stand No. 202 Coach-building Annexe).—A special doctor's two-seater body fitted to a 14 h.p. Vauxhall chassis is being shown.

FIG. 5.

Special doctor's 2-seater semi-coupé (Vauxhall and Mann Egerton).

This body incorporates many features suggested by members of the medical profession, including two doors made specially wide for easy entrance and an all-metal sloping windscreen, constructed with the lower edge of the top glass panel shaped to drain water to the outside edges. The price has been kept down to £625, complete with full equipment. (See Fig. 5.)

Accessories.

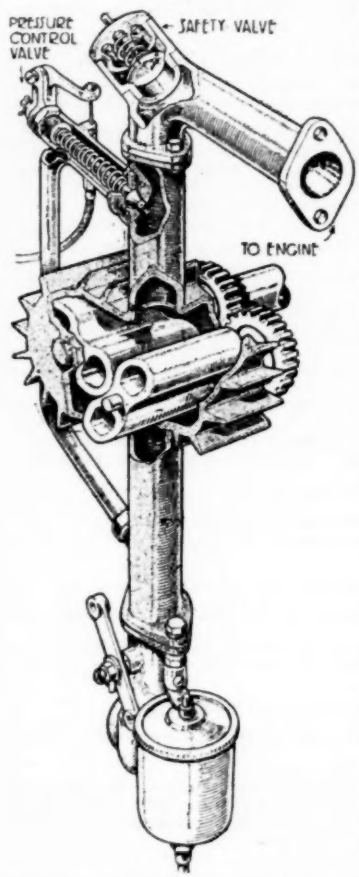
Petrol.—All the well-known firms have stands. I am often asked as to whether there is any disadvantage in mixing petrol of different makes. In practice so

[2] I am informed that, while no examples of this finish are on show at Olympia, demonstrations of the process will be given to any medical men by Messrs. Clark and Co. at their works.

long as No. 1 quality is used it does not seem to make much difference whether B.P., Shell, Pratt, or any other reliable makes are used together when this happens to be convenient, or the owner's favourite brand is not available.

Superchargers.—The average motorist has not hitherto been much interested in superchargers, but these devices for increasing horse-power are likely to be applied to ordinary private cars in the near future. Under present conditions cylinders are not filled with gas at fairly high speeds, nor is the spent exhaust gas entirely exhausted; thus every new charge in the cylinder is unsatisfactory as to quality, and is, moreover, diluted by undischarged exhaust-gas. A supercharger completely fills the cylinders of the engine with gas at high engine speeds with the consequent gain of much extra power. Without going too closely into technical details, supercharging involves the use of a blower (see Fig. 6) between the carburettor and the engine. This runs practically at crankshaft speed and increases the horse-power enormously. If the present method of taxation remains in use, no doubt some relief will be sought with a device of this description, for it will enable us to use smaller engines for the taxable horse-power.

FIG. 6.

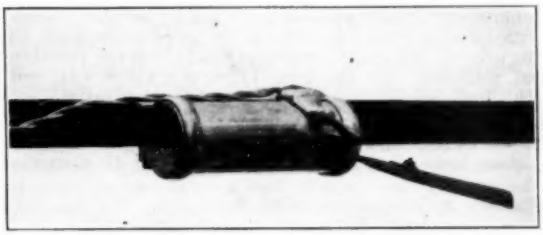


Diagrammatic view of the lay-out of an induction system incorporating a Roots blower.

Lifting Jacks.—Now that so many cars are fitted with balloon tyres it is obvious—owing to the great difference in height of the axle when the tyre is flat and when pumped up to the required pressure—that the old type of lifting jack is useless, and the buyer should therefore see that some form of double lifting jack is supplied with the equipment. There is a convenient type of jack, called the "Stevenson," which comprises two jacks permanently fitted to the chassis, one on either side, thus enabling both wheels to be lifted on either side of the car by the simple operation of turning a handle. This handle is detachable and it is only necessary to push it on to a square shaft, which is flush on the running board and protected by a rubber cap. The price of this jack system is only £6 6*s.* complete. It can be seen on the Darracq stand (No. 126).

Dunlop Rubber Co. (Stand No. 500, Gallery, Main Hall).—The bulk of our British cars are now fitted with Dunlop tyres as standard equipment. I believe this make to be one of the best at present being manufactured and the new balloon type is worth careful examination. Full information as to cost of conversion from ordinary to balloon equipment will be given by the company on application. They have issued an excellent inexpensive guide at 5*s.* It includes good, legible, and easily followed road maps, and full details of hotels and garage prices in most towns of reasonable size. A section at the end of the volume is devoted to lighting-up tables, index marks, ferries, and a short summary of the simpler side of motor-car law.

FIG. 7.

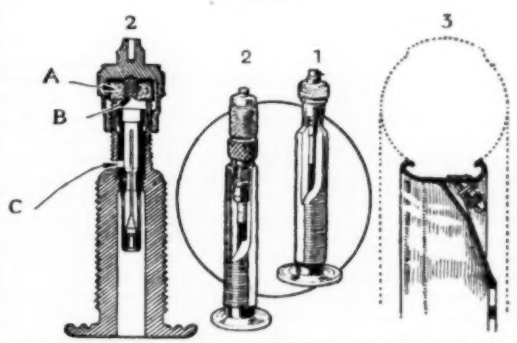


A new type of windscreen wiper working on the "solenoid" system. (Fluid Pressure Pumps, Ltd.)

Lodge Sparking Plugs (Stand No. 426) are worth examination by those unfamiliar with their robust construction. In practice they are reliable and give long service.

A new electrically driven *Windscreen Wiper*, ingenious and efficient, has been produced by Fluid Pressure Pumps, Ltd. (Stand No. 370). It is actuated on the well-known "solenoid" principle, and made in two types, both quite silent in operation. One type is actuated by a small switch which clips on to the rim of the steering wheel. Pressure on the switch button causes the squeegee to make a semi-circular sweep and return automatically to the horizontal position. The second type is rather more elaborate and can be made to operate automatically at fixed intervals adjustable from 10 to 30 seconds. The first type is 22*s.* 6*d.*, and the other 32*s.* 6*d.* (see Fig. 7). An advantage of the "solenoid" system is that the current required to operate is practically negligible.

FIG. 8.



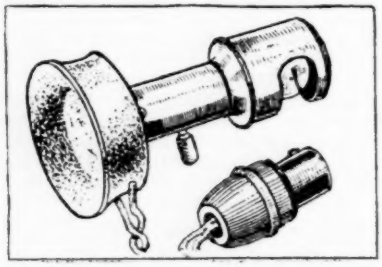
A new Michelin tyre valve. 1. Old type of valve. 2. New type of valve. 3. Shows position of valve in new steel disc wheel. A, Rubber enclosed in metal cap. B, Metal centre which takes top of plunger stem and pushes it down. C, Vent allowing air to escape when deflating tyre.

Michelin Tyre Co. (Stand No. 519).—After using the same type of tyre valve for more than 20 years, the Michelin Co. have produced and standardised a new valve, the special design of cap employed being alone responsible for retaining the air in the tube. The old rubber-headed plunger is still used, but it operates only

when the tyre is being inflated. Fig. 8 shows the difference between the old (1) and new (2) type, whilst (3) gives the position of the valve in the steel disc wheel. Briefly, the valve cap contains a rubber plug enclosed in a small metal cup, and has a metal centre with a small depression in it to take the top of the plunger stem. When the tyre is fully inflated the valve cap is screwed on and the plunger, being pushed downwards to its seating, falls to the bottom of its working chamber. This type obviates many of the troubles inseparable from the older valve, such as leakage due to grit or dirt on the plunger seating or the perishing of washers. In the new type the valve cap does the bulk of the work, obviously a more satisfactory arrangement.

Guiterman and Co. (Stand No. 284) show an interesting inspection lamp. This is fitted with a suction

FIG. 9.



Guiterman's suction cup inspection lamp.

cup at one end and can thus be stuck on to any convenient part of the car, leaving both hands free to work (Fig. 9).

General Notes.

The following points serve as a useful guide to present practice in chassis design: (1) Four-cylinder engines form about 75 per cent. of the total. (2) About 10 per cent. more cars are fitted with four speeds than with 3 speeds. (3) Pump and thermo-syphon system cooling are about equally popular. (4) Centre and side control are used in about equal proportions, and it should be noted that either can be operated with facility. Central changing is a little awkward perhaps, particularly on a two-seater, owing to its being practically impossible to seat three persons abreast; moreover, two rugs must be used in cold weather. On the other hand, it makes for easy entrance from doors on either side; whereas the side control is obstructive unless the body is built with wide doors. On the whole, therefore, it might seem that for the medical man central control on small or medium powered cars is the most advantageous. (5) Magneto ignition is used on 75 per cent. of the total number of cars shown. (6) As to brakes, ordinary two-wheel and four-wheel are about equally divided.

There is a tendency for *chassis frames* to be lower than heretofore, this policy being, I consider, in the right direction; it enables the coachbuilders to produce a body much nearer the ground, thus reducing wind resistance and roll on corners, and giving a lower entrance step for passengers.

Some indication is noticed towards *six-cylinder cars* with a small horse power. Doubtless in time these will become more universal, but progress is slow, the average user being a little nervous of what he thinks is the added complication of two extra cylinders.

It is noticeable that in many cars the framework of covered bodies is built of metal in place of wood, door pillars included, a light framework of wood being attached to the metal work for upholstery to be fixed to. This idea presents an interesting problem and may very likely lead to further developments in this direction owing to its strength and lightness.

Balloon Tyres and Springing.—Since most medium and smaller powered cars are now fitted with the balloon or low pressure tyre, the question of springing should be gone into carefully by the would-be purchaser. It must be remembered that to obtain the full benefit of balloon tyre comfort some form of rebound snubber or shock absorber should be fitted, particularly on the four-seater cars, for whilst absorbing the small shocks due to rough stretches of roads, these tyres, owing to their great flexibility, tend to create an excessive "up throw" of the body and springs. The cost of absorbers or snubbers varies from £5 5s. upwards according to the size of the car.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified: Surg. Comdrs.: A. E. Malone to *Capetown*, on recommg.; and H. A. Kellond-Knight to *Hecla*.

Surg. Lt.-Comdrs.: R. Buddle to *Vivid*, addl., for R.N. Hospl., Plymouth, as Instructor to Sick Berth Staff; N. A. H. Barlow to *Victory*, addl., for R.M. Infirmary, Eastney; and O. D. Brownfield to *Bryony*.

Surg.-Lt. D. M. Beaton to *Royal Oak*.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. E. E. Parkes is placed on the half-pay list on account of ill-health.

TERRITORIAL ARMY.

The undermentioned Lt.-Cols. to be Bt. Cols.: C. R. White, F. Whalley, C. L. Isaac, J. W. Keay, F. Darlow, R. E. Bickerton, T. B. Wolstenholme, and G. L. Thornton.

Lt.-Col. C. W. Ponder to be Bt. Col.

Maj. R. M. Wilson having attained the age limit is retd. and retains his rank.

Maj. (Prov.) O. Teichman is confirmed in his rank.

Maj. L. Ball resigns his commn. and retains the rank of Maj.

Capt. A. F. Wright (late R.A.M.C.) to be Capt.

TERRITORIAL ARMY RESERVE.

Lt.-Col. F. Hawthorn to be Bt. Col.

ROYAL AIR FORCE.

D. Magrath is granted a short service commission as a Flying Officer.

Flight Lts. R. G. J. McCullagh and C. Y. Roberts are transferred to the Reserve, Class D.2.

INDIAN MEDICAL SERVICE.

Maj. A. E. Meredith and Capt. W. E. Maxwell are confirmed in their rank.

Lt. F. H. Whyte (Prov.) to be Capt.

The King has approved the restoration to the active list from the temp. non-effective list of Maj. Abdus Sattar Khan.

The King has approved of the retirement of Lt.-Cols. W. G. Liston and J. W. Grant.

DEATHS IN THE SERVICES.

Major-General Sir Robert S. Findlay Henderson, K.C.M.G., C.B., retired Surgeon-General A.M.S., died on Oct. 5th, at the Queen Alexandra Military Hospital, at the age of 65. The son of the Rev. R. Henderson, senior chaplain, Bengal, he received his medical training at St. Mary's Hospital and at Edinburgh University, where he graduated in medicine and surgery in 1882. Two years later he entered the Army Medical Service and served in the Sudan campaign of 1885. He also served in the Burmese expedition of 1885–87, in Upper Burma against the Katchens, 1887–89, and in the Chin Lushai expedition of 1890. He was P.M.O. of the Wuntho expedition of 1891 and was mentioned in despatches, and served with the Malakand Field Force in 1897. For services in the South African war, where he was in command of field hospitals, he received the Queen's Medal, and in 1907 he was appointed secretary to Netley Hospital, becoming secretary to the Director of Medical Services in India a year later, a position which he held for four years. In 1914 he was appointed Assistant Director of Medical Services in the Quetta Division and later to the 17th Division, subsequently becoming Director-General of the New Zealand Medical Services. Sir Robert Henderson, who was an honorary physician to the King, retired in 1917 with the honorary rank of major-general, and received in the same year the C.B. He received the K.C.M.G. in 1919.

Correspondence.

"Audi alteram partem."

IS SANATORIUM TREATMENT ECONOMICALLY SOUND?

To the Editor of THE LANCET.

SIR,—The question, Are we sure that sanatorium treatment is economically sound? asked by "Medicus" in your issue of Oct. 4th, cannot be answered categorically. It is impossible to weigh against each other with the exactness of a laboratory experiment the results attained by two different methods of treatment. Papers published in 1921 by E. Ward[1] and in 1922 by G. Lissant Cox[2] reach different conclusions as to the relative values of sanatorium and domiciliary treatment in cases of pulmonary tuberculosis. The difficulty is to get really comparable cases, since it is inconceivable that the cases which receive sanatorium treatment are of the same class as those who refuse or are refused sanatorium treatment. Hence, until some public authority has the courage to treat a large series of cases by the two methods, assigning them alternately to one or other as they come, we shall have to depend for a judgment on less conclusive evidence.

There is ample evidence that many slight cases of tuberculosis recover without treatment and without being diagnosed, but tuberculosis is a serious disease when its symptoms really obtrude themselves and render the patient unfit for his work. In this stage the following conditions are generally essential for successful treatment: (*a*) Skilled medical control, which includes nursing; (*b*) good material conditions in respect of accommodation and food; (*c*) an atmosphere or environment which favourably affects the patient's psychology; and (*d*) the coöperation of the patient himself. If all these were present in the home treatment of tuberculosis, the results would, doubtless, be little different from those obtained in sanatoria. But are they? While it is true that the ideas underlying sanatorium treatment have to some extent permeated general medicine, and are appreciated by the public and by the press to a much greater extent than they were even ten years ago, yet it is no disrespect to our professional brethren engaged in general practice to say that there are very few of them who have more than a nodding acquaintance with the principles of the hygienic-dietetic treatment as carried out in the ordinary well-run sanatorium. The exceptions are, in most cases, former patients or former medical officers of sanatoria. A real knowledge of the behaviour of the body temperature in tuberculosis and of the influence of exercise on the course of the disease is seldom acquired in the medical schools or, indeed, outside the sanatorium.

It is readily admitted that in the past men have not infrequently been appointed to take charge of sanatoria or tuberculosis dispensaries who had no special knowledge of tuberculosis, and that even now one or two county councils believe they can get efficient dispensary service from officers who do also routine medical inspection of school-children and function as experts in infant welfare, and possibly also in venereal diseases and general public health. But in these days such lapses are very rare, and there are very few cases where the sanatorium superintendent or the tuberculosis officer cannot be ranked as a specialist in his subject.

Again, it is seldom that a working-class patient can secure at home the accommodation and the food which he ought to have. While exposing his family to extra risk of infection, he diminishes their resistance by requiring a share of their food. As important as any factor for his speedy recovery is the environment. In his own home the patient is regarded by himself and by others as a diseased person among healthy persons, constantly reminded of his affliction, requiring special consideration and subject to all the anxieties and annoyances of a household struggling along with diminished resources. In the sanatorium, on the other hand, he enters a new atmosphere where all are in the same boat as himself, and where everything is specifically directed, and not improvised, for the treatment of his ailment. His domestic troubles are dimmed by the want of contact with them, his mind is kept occupied by a well-ordered routine with things other than his own ill-health and his family worries. Sanatorium patients do often worry about their financial and family affairs, but nevertheless make progress towards recovery, and would in all probability worry considerably more if they were actually living at home. It is true that there are a few cases who feel the separation from their families so keenly, or are from their temperament so miserable in the sanatorium, that they may make a better recovery at home. Such cases are undoubtedly exceptional. Ordinarily the sanatorium patient is more cheerful, and is animated with a better hope of recovery than the patient treated at home. This may not be true in those institutions where advanced and even dying cases are treated alongside curable cases. The spirit of hope that is so important for the recovery of the latter is transferred to the former, for whom it can avail nothing except to add temporarily to their peace of mind. Medical officers of health lay considerable stress on the educational value of sanatorium treatment, as an asset in protecting the rest of the community, even if it did nothing to help the patient. Thus the sanatorium does considerably more than work for the individual.

It is sometimes argued that the money spent on the institutional treatment of pulmonary cases could be used to much better advantage in raising the standard of living of the patient and his family while his ill-health is being treated in his own home. If we assume, as is reasonable, that each case receives an average of four months of sanatorium treatment costing £3 a week, the cost is approximately £50. How far will such a sum, added to other assistance which he might in any case receive from public funds after leaving the sanatorium, go in providing maintenance or extra nourishment, better housing conditions, medical attendance, and drugs for a person whose incapacity for work is likely to last for at least a year, and whose partial disability ending either in recovery or in death has been estimated to last on the average over three years from the time of first requiring treatment? I am, Sir, yours faithfully,

JAMES WATT.

King George V. Sanatorium, Godalming, Surrey,
Oct. 13th, 1924.

[1] Ward: THE LANCET, March 12th and June 25th, 1921.
[2] Lissant Cox: Brit. Jour. Tuberc., January, 1923.

ANTIMONY TARTRATE IN BILHARZIA.

To the Editor of THE LANCET.

SIR,—Judging from the published reports of those who have used the sodium salt of antimony tartrate in the treatment of bilharzia disease in Africa, it is necessary to use from 25 to 30 gr. to effect a permanent cure. By using the potassium salt, I have found that a cure can be effected in the vast majority of cases in Natal by using half this total dose. Further than that, I have shown that, where the drug is dissolved in not more than 3 c.cm. of boiling saline and doses of gr. ½ to 1½ are employed for a juvenile adult, a cure is obtained practically without toxic effect throughout the series of injections. Where there is extensive destruction of the liver substance, as is so common in patients infected with *Schistosoma japonicum* and is occasionally met with in the African varieties of bilharzia disease, it is most desirable that the smallest possible total dose of antimony should be employed and distilled water avoided; for this reason, I consider that the substitution of the sodium for the potassium salt as originally used at Khartoum by Dr. J. B. Christopherson is unwarranted, and would strongly urge upon those practitioners who are called

upon to treat schistosomiasis in its various forms with antimony to confine themselves to the use of the potassium salt dissolved in saline.

I am, Sir, yours faithfully,

F. G. CAWSTON, M.D.

Durban, Natal, Sept. 13th, 1924.

FACT AND THEORY IN RADIO-THERAPY.

To the Editor of THE LANCET.

SIR,—Prof. Russ takes me to task for certain statements in my article on Some Principles of Treatment in the Radio-therapeutics of Cancer (THE LANCET, Sept. 27th).

1. Referring to a former denial on my part that ultra-violet rays could benefit deep-seated diseases, "because they had practically no penetration," I quoted instances to show that such benefit was now clinically proved, and added that "we should beware of denying clinical facts because of physical theories." Prof. Russ says: "I do not think we should blame theory here; *judgment upon the physical facts has been wrong* (italics mine), but even the facts were right." This statement appears to me somewhat lacking in lucidity, but I take it to mean that the absence of power on the part of ultra-violet rays to penetrate the body tissues remains undisputed. Quite so. It is the "judgment upon the physical facts" which has been wrong. Now, it may be due to my lack of clear thinking if "judgment upon physical facts" appears to be own brother to a "physical theory"; but so it seems to me. A theory is the outcome of reasoning, and in the case of exophthalmic goitre the syllogism was as follows: (*a*) Unless a radiation penetrates the skin it can have no effect on underlying organs; (*b*) ultra-violet rays cannot penetrate the skin—the thyroid is covered by the skin; (*c*) therefore ultra-violet rays cannot affect this organ. The major premiss was at fault, because it rested on physics without physiology. It was a flagrant example of the denial of clinical fact because of physical theory. I singled it out, because I had myself been guilty, but, unfortunately, medical history abounds with such examples.

2. I am accused of opposing a theory to a fact in the matter of acquired immunity on the part of tumours against X rays. Prof. Russ says: "He is discussing the well-known clinical fact that growths become apparently resistant to repeated application of X rays. Obviously, this may be due either to the malignant cells or to the tissues of the host, an alternative not easily decided upon in the human body. *He then refers to the fact that when animal tumours are removed from the body, and given repeated doses of X rays, the same phenomenon appears*" (italics mine). Now, while I was quite familiar with Prof. Russ's work on these lines (*Brit. Jour. Radiology*, August, 1924), I purposely avoided discussing it in my paper for the very reason that it was concerned with dosage outside the body, a procedure which has no clinical analogue. If Prof. Russ can show me the reference italicised either on page 638 or elsewhere in my paper I shall be greatly surprised. I think his enthusiasm has led him to assume some such reference must be there! I confined myself—or believe I confined myself—to clinical considerations alone. I do not for a moment deny the possibility that acquired immunity may be transmitted; but the view that, in the human subject, favourable mutations among the cancer cells may play a part is not without supporting evidence. For it is well known that when the remains of irradiated growths are examined microscopically, intact cancer cells are often found here and there amongst the corpus of their companions. The precise nature of the immunity was not, however, of importance to my argument, as I was rather concerned to show that a general failure of body resistance was of more importance in determining the final break-up than any acquired immunity on the part of the original tumour mass.

3. On page 635 I say: "The wave-length most suitable for any given type of growth must be found by clinical observation, and cannot be deduced a priori from any physical considerations." This statement was made in connexion with the warning not to pit physical theories against clinical facts, and was not intended to refer to laboratory experiments upon living animals. I follow such experiments with the greatest possible interest, and look to them to furnish new ideas which may be tried out on actual patients. If Prof. Russ will look through my writings for the past ten years, he will find very few of them (not excepting this latest paper) in which his work is not referred to, and always with appreciation.

But, when all this is admitted, one cannot "lift" the results obtained for experiments on animals and apply them forthwith to the human subject. Many disappointments have come from the attempt. And if this is true for experimental work done in the body, how much more is it true with regard to work done out of the body! The final experiment must always be clinical—i.e., upon the body of a human being.

I am, Sir, yours faithfully,

F. HERNAMAN-JOHNSON.

Harley-street, W., Oct. 11th, 1924.

DENTAL DRESSERS.

To the Editor of THE LANCET.

SIR,—I find it difficult to follow the arguments of Dr. Barwise which would make it appear that "Codlin's the friend, not Short," and that under a curious disguise he is only the true friend of the dental profession. I for one find myself lacking in a proper sense of gratitude. The real issue is not the efficiency of the dental dressers employed by the Derbyshire County Council, but whether unqualified and partly-trained individuals should be allowed to perform any operations in the mouth. The examining bodies demand a course of not less than four years training at a general and dental hospital for a dental student. The examinations are not easy and cover a wide field. If such strenuous training is considered necessary before a dentist is allowed to practise, it seems to me that the relatively slight training proposed by Dr. Barwise is not sufficient to allow such individuals to carry out dental treatment skilfully and efficiently. The Dental Board regards a proper training as so essential that if any dentist allowed a dental dresser to carry out operations of the nature advocated by Dr. Barwise, in his own practice, he would undoubtedly be regarded as committing the offence of "covering" and would be liable to have his name erased from the Dental Register. Dr. Barwise's attitude is strongly reminiscent of the newly-qualified doctor who knew enough to treat children!

Dr. Barwise complains that I have not inspected the work done by his dental dressers, but I am not debarred from criticising his proposals, for the principle involved is of great importance and far transcends the question of how these particular individuals perform their work. My experience as a dental surgeon both to a dental hospital and a children's hospital has convinced me that the dental treatment of children is the most difficult work which a dentist has to perform. The newly-qualified dentist is but a tyro in this branch of dentistry. How much less efficient those whose training is of the limited character suggested by Dr. Barwise. What would the attitude of the medical profession be toward a proposal that minor medical work should be carried out by partly-trained individuals? I am certain that doctors would oppose any such proposal, even to cope with conditions for which the number of qualified practitioners was insufficient. It would be rightly said that there is no minor medicine which is always minor and therefore within the competence of an unqualified person. At any time some unexpected difficulty may arise calling for the highest skill of the medical man. The same argument applies to dental operations by partly-trained dressers and it is for this reason that I am opposed to Dr. Barwise's proposals.

With regard to the contention that the number of dentists is insufficient for the work, a primary argu-

ment for the employment of dental dressers, this cannot possibly be sustained. For a recent appointment as full-time dentist at Dewsbury there were 73 applicants. This is not exceptional and disposes effectively of the statement that there is a shortage of dentists. I am Sir, yours faithfully,

Wimpole-street, W., Oct. 11th, 1924. A. T. PITTS.

REPRESSION OF PAINFUL MEMORIES.

To the Editor of THE LANCET.

SIR,—Dr. Hugh Wingfield's letter, published in THE LANCET of Oct. 4th, gives an interesting account of the origin of repressed memories with which I am in the main in agreement. But the process of forgetting would seem to be Nature's remedy for painful experiences, and the majority of repressed memories of childhood surely remain harmless. Nearly every child, I suppose, has been smacked at some time and forgotten the smacking which leads to no bad after-effects.

What is it, then, that produces the pathological repressed memory which in after life gives rise to the distressing symptoms we find so often in our nervous patients? I have found in nearly every case that the emotional disturbance is out of all proportion to the physical injury which generally has occurred. A sense of injustice is often an important symptom, followed, it may be, by a desire for revenge or protection against a similar experience in the future; this in turn leads to obsessional acts which the patient is quite unable to explain. When the memory is revived by hypnotism the acts and emotions are explained correctly by the patient to himself and the adult power of reasoning takes command; the cause of the distressing emotions is understood, and this, I believe, to be the reason why the recovery of the repressed memory cures the symptoms. In future, should anything occur to recall his former experience the emotion will still arise, but with it the memory and the explanation which will in turn subside, until in most cases the symptoms are no longer evident, or are so slight that they can be controlled.

I do not agree that "recalled painful memories do us no harm." They do not, of course, produce the distressful symptoms of a repressed memory, but which of us can say that memories of the late war do not affect us adversely? So much so that most people are trying to forget it. In dealing with patients, too, the physician has to tread delicately, for although in the revival of repressed memories by hypnotism or other means we possess a very valuable form of treatment which performs an undoubted cure in certain cases, it is well to remember, as Freud says in his Introductory Lectures on Psycho-Analysis, translated by Mrs. Riviere (page 320): "Although it may be said of every neurotic that he has taken 'flight into illness,' it must be admitted that in many cases this flight is fully justified, and the physician who has perceived this state of things will silently and considerately retire."

I am, Sir, yours faithfully,

PERCIVAL S. CONNELLAN.

Bloomsbury Dispensary, W.C., Oct. 6th, 1924.

GAS-AND-OXYGEN ANÆSTHESIA IN ILL PATIENTS.

To the Editor of THE LANCET.

SIR,—Dr. W. B. Howell's article in your issue of Oct. 11th is valuable to anæsthetists not only because it confirms our present knowledge of the power of adrenalin to restore the heart-beat, and of the technique of its injection, but also because it draws attention in a vivid manner to the difficulties and danger of nitrous oxide and oxygen in anæsthetising patients who are seriously ill. It may even strengthen the conviction of some that nitrous oxide and oxygen, although in theory the ideal anæsthetic for the shocked, the exhausted, and the toxæmic patient, is often the most dangerous of all general anæsthetics in actual practice.

The reasons for this conviction are not far to seek; they may be briefly stated by saying that nitrous oxide and oxygen produces indifferent muscular relaxation in the presence of sufficient oxygen to maintain complete oxygenation of the blood and that, in consequence, anæsthesia with this agent is nearly always accompanied by a slight degree of anoxæmia; more particularly if the abdomen is the seat of operation, or an operation is being performed which demands a quiet and fairly well-relaxed subject. I feel almost inclined, from experience and observation, to go even further and to say that I do not believe that anæsthesia can be obtained and maintained with this anæsthetic in the human subject without a slight degree of shortage of oxygen, judging not by the colour of the face but by the colour of the blood in the wound. However this may be, it is certain that the heart and central nervous system of a healthy patient can withstand this handicap for a considerable time, but that a long-continued anoxæmia, even if of slight degree, may prove too much for a very ill patient, or a patient who is disabled by a cardio-vascular, bronchial, or pulmonary lesion. It is wiser to add a little ether, which by deepening anæsthesia allows the use of an excess of oxygen, or to employ local anæsthesia in conjunction with nitrous oxide and oxygen, than to supplement the action of this gas by anoxæmia.

Prolonged nitrous oxide-oxygen anæsthesia suffers from another disadvantage in cases of active pulmonary tuberculosis. Rest in the recumbent posture is still part of the accepted treatment of this stage of the disease, and the resumption of physical activity is slow and gradual. If this state of rest is contrasted with the state of increased pulmonary ventilation, which exists during this anæsthesia, the question at once arises whether some other method of anæsthesia, local or general, is not advisable. Spinal analgesia is indicated in some of these cases, and in others I believe that ethylene, judging by the experience of the Mayo Clinic (*Brit. Jour. of Anæsth.*, II., i., 13) and a limited trial of this gas at Guy's, will be found to offer a solution of the problem.

Dr. Howell notes the "long period of unconsciousness" after resuscitation of the heart and quotes the unique case reported by Mr. Mollison. It is important to put on record the fact, which Mr. Mollison very kindly authorises me to use, that the mental development of this boy was very backward for at least two years afterwards. It is another proof of the grave damage which is done to the nervous system by diminishing or cutting off its supply of oxygen.

I am, Sir, yours faithfully,

Regent's Park, Oct. 11th. FRANCIS E. SHIPWAY.

FUR DERMATITIS.

To the Editor of THE LANCET.

SIR,—In a recent issue (THE LANCET, Sept. 6th, p. 505) attention was called to the report on this subject issued by the Ministry of Health. From the pathological and social points of view this report seems to me to require further comment. While describing various products of para- and meta-phenylendiamin, to which the symptoms have been attributed, it omits reference to the important point that it is not a difficult procedure actually to test either a fur or a chemical product in order to decide whether it is or is not, in fact, irritating to human skin. I have already described (*Medical Press and Circular*, March 26th, 1924) the procedure and the results which may be obtained. As the report of the Ministry stands, no evidence other than clinical association is recorded or referred to in the bibliography.

There is also confusion on an important point. The report attributes dermatitis to the presence in the fur of incompletely oxidised products of para- or meta-phenylendiamin. I showed, however, in the paper referred to above, that when either of these substances was treated with an oxidising agent, two products were formed, one soluble and irritating, and the other insoluble and harmless, the latter being "Bandrowsky's

base,' and that it was not possible to convert the former into the latter by further oxidation. All that is required is that the fur should be thoroughly washed with water. I am informed that in the case of the furs now on sale special care has been taken to eliminate this danger. It would be a pity, therefore, if as a consequence of the alarm that this report has caused in the minds of the laity, as evidenced by the comments in the daily press, those people who buy dyed rabbit fur should be unjustifiably deprived of a valuable source of warmth. In the Ministry's report only 1000 cases were recorded up to July, 1923, and as 14,000,000 dyed coney skins were consumed in this country in the making of fur garments during the period covered by the report, it follows that the risk is infinitesimal. In addition, a large number of fur garments were imported in a ready-made state. It is unfortunate that the report does not mention this.

Inasmuch as the family doctor is not infrequently consulted about the risk of disease from the wearing of fur, it is as well that these facts should be brought to the notice of the profession. Fur dermatitis is quite a definite disease with a specific cause, and it should not be assumed that other lesions, such as seborrhœa, occurring in the wearer of a fur garment are necessarily cases of fur dermatitis.

I am, Sir, yours faithfully,
A. KNYVETT GORDON, M.B., B.C., B.A. Camb.
Bedford-square, W.C., Oct. 13th, 1924.

THE TOXÆMIAS OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—Will you permit us to reply, as briefly as possible, to the strictures passed by your reviewer (THE LANCET, Oct. 4th, p. 701) on our small volume dealing with the above subject? He appears to object strongly to the terms "pre-eclampsia" and "nephritic" toxæmia, and indeed to any attempt to differentiate the two conditions. To deal adequately with the subject some rudimentary knowledge of the American literature is unfortunately necessary, since most modern investigations of the toxæmias are the product of American clinics. With such knowledge, his assertion that we have done a disservice to medicine "by endeavouring to introduce a new title" for the group which we label "nephritic toxæmia" becomes preposterous. The term has been current in American text-books for many years. It is employed by such an acknowledged authority on Obstetrics as Whitridge Williams in his well-known text-book (1917, 1923), and among other writers on the subject by Dé Lee (1918) and Slemons (1918). We cannot, therefore, plead guilty to introducing this, to him, offensive term. For the use of the word "pre-eclampsia" we can again refer him to the same authorities and assure him that in America the term has attained a wide currency. We have taken special care to point out that the pre-eclamptic condition does not invariably terminate in eclamptic convulsions, though such care hardly seemed necessary in view of the generally accepted meaning of the term. The use of the term pre-eclampsia in America has led to neither of the mischievous, but diametrically opposite, results which he fears may follow its employment in this country. If he objects to any attempt to differentiate by modern methods the conditions which may produce albuminuria in pregnancy, we can only reply that after devoting some attention to the subject we have come to the conclusion that such differentiation serves a useful purpose both in treatment and prognosis. Our preface will show that we are fully prepared to revise our views, but such revision will be the result of fuller knowledge of the subject, rather than of unsupported assertions or the *obiter dicta* of "obstetricians of 20 years ago."

We will not trespass on your valuable space by any discussion of the question of pernicious vomiting. The matter is largely one of definition, and the definition of the disease which we have given was intended to rule out the so-called neurotic vomiting. In classifying raised blood pressure and urinary changes as symptoms we are in unrepentant, though possibly erroneous, agreement with the well-known text-book of the late Sir William Osler. A slight knowledge of the etymology of the term suffices, however, to show its wide applicability.

We are, Sir, yours faithfully,
O. L. V. DE WESSELOW.
Oct. 10th, 1924. J. M. WYATT.

*** We welcome warmly any attempt to differentiate between eclampsia and nephritis; but we fear that by encouraging the use of vague titles the authors may perpetuate that lack of precision in diagnosis which at present leads to disaster in some cases and the unnecessary termination of pregnancy in others. Many practitioners have never realised that a group of cases of albuminuria in pregnancy are merely due to nephritis lit up afresh. The authors' investigations have done much to illuminate this fact; their chosen nomenclature threatens to obscure it.—ED. L.

Obituary.

GEORGE ENSIGN BUSHNELL, M.D. YALE,
COLONEL, MEDICAL CORPS, U.S. ARMY (RET.).

IN the passing of Colonel George Bushnell, the select band of workers which, following in the footsteps of Trudeau, has shed lustre upon American medical science by the study of tuberculosis loses one of its most distinguished members. Bushnell graduated at Yale in 1876 and took his M.D. at that University in 1880, entering the army in 1881. After a period of service in various frontier posts and some administrative work in the Surgeon-General's office at Washington during the Spanish-American War, his career was interrupted by an event which might well have restricted or prevented the development of his professional activities. He was stricken with pulmonary tuberculosis in 1900. But in the case of Bushnell this disability appears to have given just that direction and guidance which was destined to lead him on to further distinction and utility. In 1903 he assumed duty as Commanding Officer of the Army Sanatorium at Fort Bayard, and started that intensive study of tuberculosis which was to place him in the front rank of his profession. This appointment led to one of still greater importance, for in 1917 he was transferred, once more, to the Surgeon-General's office and placed in charge of the section of tuberculosis, a post which he held through the strenuous time of America's preparation for, entry into, and demobilisation after the European war. Colonel Bushnell's most important contribution to medical science is his work, "A Study in the Epidemiology of Tuberculosis, with special reference to Tuberculosis in the Tropics and of the Negro Race."[1] This book deserves to become one of the classics on epidemiology, since it brings the weight of its author's knowledge and experience to support a view of disease which, especially important in tuberculosis, has, at the same time, a wide bearing upon bacterial dissemination in general and the response of man and animals to the infective elements of their environment. Unlike most tuberculosis workers, Bushnell had had to do not merely with the disease as it is seen in civilised communities, but also in its manifestations in the virgin soil of American Indians and in the relatively non-resistant negroes of the Southern States. This opportunity was not lost upon him. To his prepared mind, the contrast between the clinical and epidemiological picture under these varying conditions carried its true lesson.

In the book above quoted Bushnell wrote: "We cannot comprehend how a general tuberculization 'influences the dissemination' and progress of tuberculous disease until we know how communities and individuals fare who have not had previous

[1] New York: William Wood and Company. 1920.

acquaintance with the tubercle bacillus." He recognised to the full the importance of previous contact with, and infection by, the tubercle bacillus in raising the resistance against reinfection and in modifying the course of the disease when it becomes developed to the threshold of clinical manifestation. Physical signs, for him, assumed their proper character as phenomena of resistance. "Râles," he says, "constitute the auscultatory evidence of inflammatory reaction to the poisons of the tubercle bacillus. . . . They are the best evidence that the lesion is resisting its foe." In his capacity as chief of the tuberculosis section at Washington, Bushnell was able to focus his previous observations on tuberculosis so as to illuminate the problem of this disease as affecting an army in the field. A notable paper from his pen on the subject of Tuberculosis Epidemiology in the World War appeared in the *Military Surgeon* of November, 1922. Here he pointed out that, so far as concerns European or American troops, "the experience of the best clinicians has led them to believe that tuberculosis is not disseminated under the conditions of army life. . . . Those who will break down under the conditions of military service are, in very large measure, those who bring their tuberculosis with them into the service."

These brief quotations suffice to show that Bushnell was an original and independent thinker, and that his studies on epidemiology had led him, independently, to the same conclusions as had been reached under similar conditions by several European workers such as Metchnikov, Calmette, and Sanarelli.

Those who had the privilege of meeting Colonel Bushnell when, though weary from a life of work and study and feeble from a long struggle with disease, he attended the International Conference on Tuberculosis in London in 1921, will recollect the quiet, self-effacing courtesy of his manner, the sudden flash of interest as some point of epidemiological importance emerged in the discussion, the keen, highly-trained mind that was evident when he spoke upon the disease which had formed his life-study. His contributions to our knowledge of tuberculosis will live.

SIR CHARLES CAMERON, BART., M.D., M.CH., LL.D. DUB.

Sir Charles Cameron, formerly Member of Parliament for Glasgow, who died on Oct. 2nd at the age of 82, was the son of John Cameron, a newspaper proprietor of Glasgow and Dublin. Born in 1841, he was educated at Madras College, St. Andrews, and later entered Trinity College, Dublin, where he was senior moderator and gold medallist in 1862, and obtained the first place in the M.B. and M.Ch. examinations in the same year. After doing post-graduate work in Paris, Berlin, and Vienna, he decided to enter the ranks of journalism, and became in 1864 editor of the *North British Daily Mail*, a Glasgow periodical, of which his father was part proprietor. The following year he obtained the degrees of M.A. and M.D. Dub., and received the LL.D. in 1870. In his capacity as editor he worked for ten years, and was an assiduous student of social reform. He soon won for himself a name in the political world in the West of Scotland as an advanced Liberal, and when he stood for Parliament in 1874 he was returned at the head of the poll for the undivided constituency of Glasgow, which then returned three Members. At the General Election of 1880 he was again returned, and after the city was divided into separate constituencies he was elected in 1885 for the College Division, which he represented for ten years. He lost his seat in 1895, but from 1897 to 1900, when he retired at the General Election, he represented the Bridgeton Division. His political activities included the placing of no fewer than nine separate Acts of Parliament on the Statute Book, among them the adoption of the sixpenny telegram, the passing of the Inebriates Acts, the Acts abolishing imprisonment for debt in Scotland, for conferring the municipal franchise on women in Scotland, and for various reforms in the Scottish licensing laws.

In 1893, the year in which he was created a baronet for his able Parliamentary work, he was appointed chairman of the departmental committee on the coastwise transit of cattle; in 1894 he was chairman of the departmental committee on habitual offenders in Scotland, and in 1895 served on the Royal Commission on the liquor licensing laws.

Sir Charles Cameron was the author of a number of pamphlets on medical, social, and political subjects, vaccination and the prevention of cholera being among them. In 1881 he was president of the Health Section of the Social Science Congress, and at the annual meeting of the British Medical Association at Belfast in 1884 presided over the Section of Public Health, taking for his presidential address the subject of the cholera microbe and how to meet it. This address evoked much interest, and was afterwards published in pamphlet form. A justice of the peace and a deputy lieutenant of the county and city of Glasgow, Sir Charles Cameron, when he retired from active Parliamentary work, was presented by his many friends and admirers with his portrait as a recognition of his high personal character and his services to the city of Glasgow. He married first, in 1869, Frances Caroline Macauley, who died in 1899, leaving one daughter; and secondly, in 1900, Blanche, daughter of Arthur Perman, of Stoke Newington, who survives him with one daughter and a son, born in 1903, who succeeds to the baronetcy.

EDGAR REID, M.R.C.S. ENG.

Dr. Edgar Reid, honorary gynæcologist to the Swansea Hospital, died at his residence in Swansea on Sept. 19th as a result of septic infection of the finger after performing an operation about ten days previously. He was 59 years of age and was born in Swansea. After qualifying at Guy's Hospital he returned to Swansea to join the late Dr. H. A. Latimer in general practice. When the latter retired Dr. Reid gave up general work and specialised in obstetrics and gynæcology and was in charge of that department at the Swansea Hospital. He was also a consultant of the Aberavon and Maesteg Hospitals. During the war he was on the staff of the 3rd Western Hospital at Cardiff. A colleague writes: "He was undoubtedly and deservedly the most popular member of the medical profession in West Wales. While at Guy's he was captain of the cricket team and also played football for the hospital. Later he played for Glamorgan county at cricket and for Swansea at football. As a bat and cover-point he has never been excelled in South Wales. The present generation will remember him best as a golfer, and on two occasions he was runner-up of the semi-final Welsh golf championship. He was the kindest of men and a loyal friend." Dr. Reid leaves a widow and a daughter. His only son was killed in action in France in 1917.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 4TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week, namely:—Small-pox, 52; scarlet fever, 2040; diphtheria, 1007; enteric fever, 137; pneumonia, 533; puerperal fever, 35; cerebro-spinal fever, 7; acute poliomyelitis, 32; acute polio-encephalitis, 3; encephalitis lethargica, 52; typhus fever, 1; continued fever, 3; dysentery, 3; ophthalmia neonatorum, 110. There were no cases of cholera or plague notified during the week. The case of typhus fever was notified (in error) from Bethnal Green (see p. 817).

Deaths.—In the aggregate of great towns, including London, there were 5 deaths from enteric fever, none from small-pox, 8 from scarlet fever, 30 from diphtheria, 12 from measles, 25 from influenza. In London itself the diphtheria deaths numbered 18, and the deaths from infantile diarrhœa 28.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Defeat of Government and Dissolution.

ON Wednesday, Oct. 8th, the Government were defeated by 364 votes to 198 on a Liberal amendment to a vote of censure moved by the Conservatives. The amendment called for the appointment of a Select Committee of the House of Commons to inquire into the withdrawal of the prosecution at the instance of Sir PATRICK HASTINGS, the Attorney-General, of Mr. J. R. CAMPBELL, the acting editor of the Communist newspaper the *Workers' Weekly*, for publishing an article inciting the troops to mutiny. After the announcement of the results of the division the Prime Minister moved the adjournment of the House of Commons till the following day. On Thursday, Oct. 9th, Mr. RAMSAY MACDONALD announced in the House of Commons that he had advised the King to dissolve Parliament, and that the General Election would be held on Oct. 29th. After the Lords had passed the Irish Boundary Commission Bill through its remaining stages, the Royal Assent was given to that measure and Parliament was prorogued by Royal Commission.

HOUSE OF COMMONS.

WEDNESDAY, OCT. 8TH.

Admiralty Medical Department.

Mr. OTHO NICHOLSON asked the Parliamentary Secretary to the Admiralty whether he was aware of the office conditions in the medical department, where one room used as a repository was badly ventilated, poorly lighted, dusty and dirty, and another room used for typing was unfit for human habitation, especially in winter months, and clerks were still working in draughty corridors; whether the department observed any quota of cubic space per person, and, if so, what it was; and whether he would investigate the grievances of the staff with a view to immediate action.—Mr. AMMON replied: If the Admiralty had been aware that the staff of the medical department had any complaint to make in regard to their present accommodation they would, of course, have inquired into it and have communicated with H.M. Office of Works on the subject, but in view of the hon. Member's question I will now refer the matter to my right hon. friend.

Exemption from Vaccination.

Mr. ERNEST SIMON asked the Minister of Health whether, in view of the strongly expressed opinion of the chief medical officer of the Ministry of Health that the public had taken dangerous advantage of the facilities for obtaining exemption from vaccination, he would reconsider the action taken by him on August 30th in rescinding the Vaccination Order of 1923 and thereby making exemption easier.—Mr. WHEATLEY replied: The answer is No, Sir.

Cobb Committee and Lunacy Regulations.

Mr. ROBERT RICHARDSON asked the Minister of Health how soon he proposed to carry into effect the recommendation of the Cobb Committee appointed by his department—viz., that Section 79 of the Lunacy Act be posted up in the waiting-rooms of public asylums so that friends as distinct from relatives of the patient might be made acquainted with the privilege, to which they were entitled by the Act, of making application to the visiting committee for the discharge of inmates, a privilege of which they had hitherto been kept in ignorance.—Mr. WHEATLEY replied: I would refer the hon. Member to the answer given to the hon. Member for Pontypool on March 12th, 1923, that in the opinion of the Board of Control there are serious objections to a general rule requiring that this section should be posted up in waiting-rooms. The revised rules of the Commissioners of the Board of Control, which are now awaiting statutory approval, provide that on the admission of every pauper lunatic to an institution for lunatics a notice shall be sent to all persons whose names appear as relatives or friends of the patient in the statement of particulars accompanying the reception order as to the times and conditions of visitation; and in such notice shall be embodied the substance of Section 79 of the Lunacy Act, 1890.

Compensation for Silicosis.

Lieut.-Commander FLETCHER asked the Home Secretary if a decision had yet been arrived at as to whether silicosis, or potter's asthma, should be scheduled under the Workmen's Compensation Act.—Mr. HENDERSON replied: The matter is one which would have to be dealt with by a scheme under the Workmen's Compensation (Silicosis) Acts, and I am advised that before a scheme under those Acts can be drawn up, a special inquiry involving the medical examination of a considerable number of workers in the industry must be undertaken. I am hoping to arrange for the commencement of this inquiry at an early date.

Maintenance of Pauper Lunatics.

Lieut.-Commander FLETCHER asked the Minister of Health if he was aware that the existing grants to boards of guardians at 4s. per head for maintenance of pauper lunatics is totally inadequate; and if he proposed to introduce legislation to remedy this state of affairs.—Mr. WHEATLEY, replying, said: I cannot undertake to introduce legislation for the alteration of this grant at the present time.

THURSDAY, OCT. 9TH.

Progress of House Construction.

Captain BOWYER asked the Minister of Health how many houses up to date were approved; how many were under construction; and how many had been completed under the Housing Act, 1923.—Mr. GREENWOOD (Parliamentary Secretary to the Ministry of Health) replied: 161,441 houses have been authorised to date under the Housing, &c., Act, 1923. On Sept. 1st, the latest date for which information is available, 26,347 houses had been completed and a further 50,524 were in course of construction.

Pensioners' Allowances for Out-patient Treatment.

Mr. TREVELYAN THOMSON asked the Minister of Pensions whether he would revise the regulations which prevented an ex-Service man who was undergoing out-patient treatment from receiving any monetary allowance even when the disability for which he was being treated prevented him from following his normal occupation.—Mr. F. O. ROBERTS replied: I fear that I am not in a position to accept my hon. friend's suggestion. I may, however, state that at the present time there are on an average over 6000 men undergoing out-patient treatment who are in receipt of full allowances under Article 6 of the Royal Warrant.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations recently held the following candidates were successful:—

DIPLOMA IN PUBLIC HEALTH.

Stuart F. Allison, Charles C. P. Anning (Trin.), Constance E. Appleton, William H. I. Bathurst, George R. H. Chell, *Robert P. Cormack, Isabelle A. Deans, Alice M. S. Dewar, Herbert S. Griffith, Thomas W. Hill, *Oswald R. Horwood (Corp. Chr.), Lionel J. Kahawita, Henry J. R. Kirkpatrick, *Frederick McKibbin, Guy Meadows, Margaret J. Rennet, Emily V. Saunders-Jacobs, John Scott, Ramtaran Sen, Robert S. Taylor (Down), Ann W. Turnbull, and John Wyllie.

* Distinguished in the application of Sanitary Science.

DIPLOMA IN HYGIENE.

*†Riad Hilmy Bestawros (non coll.), Ali Foad (non coll.), Mohamed Abdel-Hamid Gohar (non coll.), Azif Youssef Mankarius, (non coll.), *Abdel Shafi Mohammed (non coll.), ‡Mohammed Nazif (non coll.), Ismail Yousry (non coll.).

* Distinguished in the Principles of Hygiene.
† Distinguished in Bacteriology.
‡ Distinguished in the application of Sanitary Science.

UNIVERSITY OF LONDON.—The President of the Board of Education has instituted a Departmental Committee to deal with the final report of the Royal Commission on University Education in London dated March 27th, 1913, and, having regard to present circumstances and after consultation with the persons and bodies concerned, to indicate what are the principal changes now most needed in the existing constitution of the University of London and on what basis a Statutory Commission should be set up to frame new statutes for the University. The following were appointed as members of the committee by the President of the Board of Education: Lord Ernle (chairman), Sir Robert Blair, Dr. H. L. Eason, Mr. H. B. Lees-Smith, Sir Henry Miers, Prof. A. F. Pollard, Sir Amherst Selby-Bigge, Bart., Miss K. Wallas, and Mr. S. H. Wood (secretary). With reference to the appointment of this committee a communication dated Sept. 15th, 1924, was received by the Senate of the University of London from the President of the Board of Education, and on the afternoon of Oct. 9th an extraordinary meeting of the Senate was held, with Prof. E. A. Gardner in the chair, to consider the communication, when the following resolution was passed unanimously:—

That the President of the Board of Education be respectfully reminded that the Senate was not consulted as to the reference to the Haldane Commission, nor represented upon it, nor gave evidence before it; and that, having regard to the successful progress of the University since the Report of that Commission, the Senate is of opinion that such changes in the organisation of

the University as are necessary may be more readily effected by amendments promoted by the University than by a statutory revision of the University as constituted by the Act of 1898; but that the Senate will be prepared to furnish through its officers and appropriate Committees any information desired by the Departmental Committee and trusts that the various bodies and interests represented on the Senate will receive a full opportunity of putting individually or collectively before the Departmental Committee their views on the matters under consideration.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A quarterly meeting of the Council was held on Oct. 9th with Sir John Bland-Sutton, the President, in the chair. On behalf of the committee on the annual report of the Council, a draft copy of the report to be presented to the Fellows and Members at the annual meeting on Nov. 20th was submitted and the report was approved and adopted.—Mr. Anthony Richard Charles Higham, lately a student at Epsom College, was nominated the thirty-second Jenks Scholar.—A Sir Gilbert Blane Medal was awarded to the following medical officer of the Royal Navy: Surg.-Lieut.-Commander Harold Boultbee Padwick, D.S.O., B.A., Promotion Examination, 1924.—The President reported that the Bradshaw Lecture on Some Clinical Aspects of Carcinoma of the Breast would be delivered by Mr. Raymond Johnson on Nov. 6th, at 5 P.M., and that the Thomas Vicary Lecture on Sir Richard Owen as Conservator would be delivered by Sir Arthur Keith on Nov. 12th, at 5 P.M.—The diploma of Member was conferred upon Violet Alice Quilley, Royal Free Hospital, who has complied with the necessary by-laws.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—At St. Peter's Hospital begins on Monday, Oct. 20th, a four weeks' special course in urology, which comprises clinical work daily, in addition to formal lectures on the various aspects of urinary disease. Also commencing on the 20th is a fortnight's intensive course in cardiology at the National Hospital for Diseases of the Heart. The Hampstead General Hospital has arranged a two weeks' intensive course, embracing all the general and special departments of medicine and surgery, from Monday, Oct. 27th, to Friday, Nov. 7th. The course will include demonstrations of clinical methods and cases, and formal lectures. The special combined course on children's diseases, in which the following hospitals will participate, Paddington Green Children's Hospital, the Victoria Hospital for Children, and the Children's Clinic, will embody lectures and clinical demonstrations on medical and surgical diseases of children (including special departments). There will be two sessions daily, as specified in the syllabus, from Oct. 27th to Nov. 15th. Courses for November are as follows: Dermatology, St. John's Hospital for Diseases of the Skin; gynæcology, Chelsea Hospital for Women; proctology, St. Mark's Hospital; venereal disease, London Lock Hospital; and a general course (medicine, surgery, and gynæcology), Royal Waterloo Hospital. Copies of the syllabus of each of the above courses, with further particulars, together with the Association's Bulletin, can be obtained from the secretary at 1, Wimpole-street, W. 1.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.—The opening lecture of the winter session will be given on Tuesday, Oct. 21st, at 4.30 P.M., by Colonel L. W. Harrison, R.A.M.C., on the diagnosis and treatment of gonorrhœa in the male. The lecture will be illustrated by a cinematograph film, and will be open to any medical practitioners who care to attend. An opportunity will be afforded from 3.30 to 4.30 P.M. for a visit of inspection of the new wards, theatre, and other recent extensions of the hospital. Those wishing to avail themselves of this opportunity are requested to intimate their intention to the Dean, at the Prince of Wales's General Hospital, Tottenham, N. 15, so that tea may be provided for them.

AMERICAN SOCIAL HYGIENE CONFERENCE.—The National Social Hygiene Conference for 1924 will take place in Cincinnati, Ohio, on Nov. 19th to 22nd. This Conference will mark the tenth anniversary of the founding of the American Social Hygiene Association, and it will be held under the joint auspices of the National Association and the Cincinnati Social Hygiene Society. Among the speakers will be: Miss Grace Abbott, Director, Children's Bureau, Washington, D.C.; Dr. Gordon Bates, general secretary, Canadian Social Hygiene Council; Prof. Maurice A. Bigelow, Teachers College, Columbia University, New York City; Surgeon-General Hugh S. Cumming, United States Public Health Service; Dr. Lee K. Frankel, chairman, National Health Council; Dr. J. J. Heagerty, Chief of the Division of Venereal Disease Control, Department of Health, Ottawa, Canada; Dr. Edward L. Keyes, President, American Social Hygiene Association; Dr. Joseph S. Lawrence, Director, Division of Venereal Diseases, New York State Department of Health; Dr. J. E. Munger, State Director of Public Health, State Board of Health, Columbus, Ohio; Dr. William F. Snow, General Director, American Social Hygiene Association; Mrs. Anna Garlin Spencer, Board of Directors, American Social Hygiene Association; Mrs. Mina C. Van Winkle, Director, Women's Bureau, Metropolitan Police Department, Washington, D.C.; together with Mrs. Clive Neville-Rolfe, O.B.E., general secretary of the National Council for Combating Venereal Diseases, London. Full information and a copy of the Conference programme may be obtained from Mr. E. F. Van Buskirk, executive secretary, Cincinnati Social Hygiene Society, 25, East 9th-street, Cincinnati, Ohio.

GUILD OF ST. LUKE.—The medical service at St. Paul's Cathedral will be held (as already announced) on Tuesday, Oct. 21st, at 7 P.M.

INSTITUTE OF HYGIENE.—A "children's health" series of lectures will be delivered at the Institute, 33–34, Devonshire-street, London, W. 1, on Tuesdays, at 3.30 P.M., commencing on Oct. 22nd, when Dr. James Fenton will speak on the Preservation of Health in Childhood.

PRINCE OF WALES'S HOSPITAL.—The annual reunion dinner will be held at Pagani's Restaurant, Great Portland-street, London, W., on Friday, Oct. 24th, at 7.30 for 8 o'clock, when the chair will be taken by Mr. H. W. Carson. The secretaries are Dr. Browning Alexander, 143, Harley-street, W. 1, and Dr. S. O. Rashbrook, 7, Wellesley-road, Chiswick, W. 4.

EUGENICS EDUCATION SOCIETY.—A lecture will be delivered on the Present Position of Mental Deficiency under the Act, by E. J. Lidbetter, at the rooms of the Royal Society, Burlington House, Piccadilly, on Wednesday, Oct. 22nd, at 5 P.M., Major Leonard Darwin in the chair. Members of the Eugenics Education Society and all interested in the above subject are invited to attend.

HUNTERIAN SOCIETY.—The first dinner meeting of the society will be held at Simpson's Restaurant, 2 and 3, Bird-in-Hand Court, 77, Poultry, Cheapside, on Monday, Oct. 20th, at 7.30 P.M. After dinner, about 8.30 P.M., Mr. H. W. Carson will deliver the presidential address on the Watershed of Medical Practice. The price of the dinner is 3*s.* 6*d.* (excluding wines).

EPSOM COLLEGE MEMORIAL CHAPEL.—In consequence of the recent builders' strike the consecration of the Memorial Chapel at Epsom College, Surrey, has been postponed from Nov. 1st, 1924, to Saturday, Feb. 21st, 1925, when the Bishop of Winchester will perform the ceremony. It is hoped that the chapel will be in full use by the middle of next month.

LONDON SCHOOL OF DERMATOLOGY.—The Chesterfield lectures, constituting a systematic course in dermatology, will be given at 5 P.M. on Tuesdays and Thursdays from October to March at St. John's Hospital for Diseases of the Skin, Leicester-square, W.C. An examination will be held at the end of the course, and the Chesterfield medal will be awarded to the best candidate, provided the required standard is reached. The syllabus and further particulars may be obtained from the Dean of the school.

ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH, FIFE.—Winter Session.—Papers dealing with Renal Efficiency will be read and discussed on Tuesday afternoons at 4 P.M. as follows: Oct. 21st, Anatomy and Embryology of the Kidney, Prof. D. Waterston; Oct. 28th and Nov. 4th, Physiology of the Kidney, Prof. P. T. Herring. Notice of the subjects of subsequent discussions will be published later. All practitioners are cordially invited to these meetings.

Mr. Warren Low was the guest of the Surgical Instrument Manufacturers' Association at their annual dinner held at the Holborn Restaurant on Oct. 10th. In acknowledging the toast for the guests he complimented British manufacturers upon the high standard of excellence reached by them in the surgical instruments they produced. He considered that British manufacturers had not only kept abreast of the times, but had presented to the world types, characteristics, and qualities which defied imitation.

Messrs. Bale, Sons and Danielsson are publishing the third Research Study in Medical History of the Wellcome Historical Medical Museum, being the Iconography of Andreas Vesalius (André Vésale), Anatomist and Physician, 1514–1564, a work which was projected to celebrate in Brussels in 1914 the fourth centenary of Vesalius's birth. The author, Mr. M. H. Spielmann, F.S.A., F.R.S.L., has added a number of notes, critical and bibliographical, and forewords are contributed by Prof. Paul Heger, Sir Arthur Keith, Prof. Harvey Cushing, and Dr. Tricot-Royer. The study is illustrated by 100 reproductions from paintings, pictures, engravings, sculpture, and medals.

WEST RIDING ASSOCIATION OF THE GRADUATES OF THE UNIVERSITY OF EDINBURGH.—The annual dinner will be held at 7.15 P.M. on Wednesday, Nov. 12th, at the Midland Hotel, Bradford. It is to be preceded by the annual general meeting at 6.30 P.M. The guest of the evening will be Prof. George M. Robertson, professor of psychiatry at the University of Edinburgh.

DANGEROUS DRUGS.—A draft of the new regulations amending the Raw Opium Regulations, 1921, and the Dangerous Drugs Regulations, 1921 and 1923, under the Dangerous Drugs Act, 1920, has just been issued by the Secretary of State of the Home Department. The effect of the new regulations is to prohibit the diversion of consignments of raw opium and dangerous drugs passing through ports in Great Britain to destinations different from those to which the consignments were licensed from the country of export; and to modify in the case of prescriptions issued on National Health Insurance forms the requirements to be observed before a prescription for dangerous drugs is dispensed. Draft copies of the new regulations can be obtained on application to the Under Secretary of State, Home Office, Whitehall, London, S.W. 1.

FIFTH INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE.—This congress will be held at Geneva on July 20th to 25th, 1925, under the patronage of the Medical Society of Geneva. The following are the office-bearers:—President of Honour: Sir D'Arcy Power, K.B.E. (London). Vice-Presidents of Honour: Drs. P. Capparoni (Rome), D. Giordano (Venice), E. B. Krumbhaar (Philadelphia), Laignel-Lavastine (Paris), J. G. de Lint (The Hague), A. Patey (Geneva), J. D. Rolleston (London), Charles Singer (London), Mr. C. J. S. Thompson (London), and Dr. Tricot-Royer (Antwerp). President: Dr. Charles Greene Cumston (Geneva). Vice-Presidents: Dr. Ernest Wickersheimer (Strasbourg) and Prof. Andrea Corsini (Florence). General Secretaries: Drs. A. de Peyer (Geneva) and Emile Thomas (Geneva). Treasurer: Dr. Edouard Schauenberg. Subscriptions for members will be 15 Swiss francs; for Associates, 10 Swiss francs, which should be sent to the treasurer at the office of the General Secretariate, 20, rue Général Dufour, Geneva. Members will be entitled to a copy of the proceedings of the congress when published. A preliminary programme of the proceedings will be issued about Dec. 1st, and can be had upon application to the General Secretariat. A cordial invitation is extended to members of the profession interested in the subject to become members and take part in the meeting of the congress.

DONATIONS AND BEQUESTS.—By will the late Mr. James Parr, of Higher Openshaw, Manchester, left, subject to life interests, £6000 Manchester Corporation Stock and £2600 Manchester Royal Exchange Building Stock to St. Mary's Hospitals, the Manchester and Salford Lying-in Hospital, the Manchester Maternity Hospital, and the Manchester Southern Hospital; and £15,000 between St. Mary's Hospitals, the Manchester and Salford Lying-in Hospital, the Manchester Southern Hospital, and the Manchester Maternity Hospital; £6000 to St. Mary's Hospitals, the Manchester and Salford Lying-in Hospital, the Manchester Southern Hospital, and the Manchester Maternity Hospital; and £6000 to Ancoats Hospital and Dispensary. Part of the residue of the estate will also be divided between St. Mary's Hospitals, the Manchester and Salford Lying-in Hospital, the Manchester Maternity Hospital, Ancoats Hospital and Dispensary, the Society for the Prevention of Cruelty to Animals, Manchester Branch, and Henshaw's Blind Asylum.—The late Mr. James Fieldsend, of Sheffield, left, among other bequests, by will £200 each to the Sheffield Royal Hospital, the Sheffield Royal Infirmary, the Jessop Hospital for Women, the Edgar Allen Institute, the Sheffield Children's Hospital, the Blind Institution, West-street, the Deaf and Dumb Institution, Charles-street, the Sheffield Branch of the Y.M.C.A., and the Queen Victoria Nursing Association, Sheffield. Subject to bequests totalling some £1200, and to certain life interests, he left the residue of his property equally between the Sheffield Royal Hospital, the Sheffield Royal Infirmary, the Jessop Hospital for Women, the Blind Institution, West-street, the Boys' Charity School, Sheffield, and the Girls' Charity School, Sheffield.—By the will of the late Dame Ada Elizabeth Jackson, of Ennismore-gardens, Westminster, S.W., the testatrix left £5000 to Cardiff Royal Infirmary in memory of her late husband, Charles James Jackson, with the request that a children's ward or wards shall be known as the "Sir Charles and Lady Jackson" Ward or Wards.—Miss Louisa Anne Townsend, of Alveston, Warwickshire, left £200 to the Stratford-upon-Avon Hospital, the Stratford-upon-Avon Nursing Home, and the Industrial Home, Stratford-upon-Avon.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Oct 21st.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for Election to the Fellowship.

PATHOLOGY: at 8.30 P.M.
Presidential Address by Dr. J. A. Murray.

Wednesday, Oct. 22nd.

COMPARATIVE MEDICINE: at 5 P.M.
Presidential Address:
Mr. Frederick T. G. Hobday: The Section of Comparative Medicine.

Thursday, Oct. 23rd.

EPIDEMIOLOGY AND STATE MEDICINE: at 5.30 P.M.
Presidential Address:
Dr. John C. McVail: Progress in Preventive Medicine.

Friday, Oct. 24th.

STUDY OF DISEASE IN CHILDREN: at 5 P.M.
(Cases at 4.30 P.M.)
Cases:
Dr. Bernard Myers: Case demonstrating the Use of Pituitary Whole Gland in Chronic Constipation.
Mr. Denis Browne and Mr. Twistington Higgins: Congenital Hypertrophy of both Lower Limbs.
Dr. F. J. Poynton: Cases of Cœliac Disease with Glycosuria. Other cases will be shown.
Communication:
Dr. B. E. Schlesinger: The Subsequent History of a Series of Cases Operated on for Pyloric Stenosis.

THE MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.
TUESDAY, Oct. 21st.—8.30 P.M., Prof. Harvey Littlejohn: (1) Judicial Hanging: A Humane Method of Execution. (2) What is the Fatal Dose of Strychnine? Followed by a discussion.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, W.
THURSDAY, Oct. 23rd.—8.15 P.M., Sir Malcolm Watson: Observations on Malaria Control with special reference to the Assam Tea Gardens, illustrated by lantern slides. This will be preceded by a demonstration on Some Malaria-carrying Mosquitoes and their Larvæ.

THE TUBERCULOSIS SOCIETY, at the House of the Society of Medical Officers of Health, 1, Upper Montagne-street, Russell-square, W.C.
FRIDAY, Oct. 17th.—8 P.M., Dr. O'Donovan: Cutaneous Tuberculosis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Oct. 20th to SAT. Oct. 25th.—ROYAL SOCIETY OF MEDICINE. Lecture arranged by the FELLOWSHIP OF MEDICINE and open to members of the profession. Mon., 5.30 P.M., Sir StClair Thomson: Cancer of the Larynx.—BETHLEM ROYAL HOSPITAL, St. George's Fields, S.E. Tues., 11 A.M., Dr. Thomas Beaton: The Psychoses. Sat., 11 A.M., Dr. Porter Phillips: The Medico-legal Aspect of Insanity.—CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C. Special Intensive Course.—LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Endsleigh-gardens. Tuesday and Thursday, 2 P.M., Clinical Demonstration by Dr. G. C. Low and Dr. Manson-Bahr.—ROYAL FREE HOSPITAL, Gray's Inn-road, W.C. Wed., 5.15 P.M., Dr. Heald: Lecture-Demonstration, The Medicinal Uses of Ultra-Violet Light.—ST. PETER'S HOSPITAL, Henrietta-street, W.C. Clinical work and Lectures daily.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
FRIDAY, Oct. 24th.—5 P.M., Prof. Arthur Keith: Museum Demonstration: Specimens illustrating the Common Kinds of Congenital Malformation.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
TUESDAY, Oct. 21st.—4.30 P.M., Colonel L. W. Harrison: Cinematograph Demonstration, The Diagnosis and Treatment of Gonorrhœa in the Male.
FRIDAY.—4.30 P.M., Dr. F. L. Provis: The Diagnosis and Treatment of Syphilis.
Daily: Medical and Surgical Clinics and Clinics in the various Special Departments, Surgical Operations, &c.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
TUESDAY, Oct. 21st.—5 P.M., Dr. A. W. Barber: Bacteriology and Mycology.
THURSDAY.—5 P.M., Dr. H. G. Adamson: General Ætiology.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, Oct. 20th.—12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. 2 P.M., Mr. Bishop Harman: Eye Dept.
TUESDAY.—10 A.M., Medical Registrar: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.
WEDNESDAY.—11 A.M., Dr. Davies: Gynæcological Demonstration. 12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Pernet: Skin Dept.
THURSDAY.—11 A.M., Dr. Simpson: Gynæcological Wards. 12 noon, Dr. Scott Pinchin: Heart Diseases. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.
FRIDAY.—12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Dr. Burrell: Medical Out-patients. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Throat, Nose, and Ear Operations.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)
MONDAY, Oct. 20th.—(At the Shaw-street Hospital.) Dr. Gemmell: Gynæcological Diagnosis.
TUESDAY.—(At the Maternity Hospital). Dr. Willett: Antenatal Management.
WEDNESDAY.—(At the St. Paul's Hospital.) Dr. T. Stevenson: Eye Cases.
THURSDAY.—(At the St. George's Hospital.) Dr. F. Barendt: Skin Cases.
FRIDAY.—(At the Eye and Ear Infirmary.) Mr. H. E. Jones: Differential Diagnosis of Common Non-Inflammatory Eye Conditions.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
TUESDAY, Oct. 21st.—4.15 P.M., Mr. E. D. Telford: Diverticulitis.
FRIDAY.—4.15 P.M., Prof. R. B. Wild: The Treatment of Pain.

ROYAL INSTITUTE OF PUBLIC HEALTH, Russell-square, W.C.
(Course of Lectures on the Health of the Commonwealth.)
WEDNESDAY, Oct. 22nd.—4 P.M., Prof. W. S. Lazarus-Barlow: Cancer Propaganda.

Appointments.

CRONIN, A. J., M.B., Ch.B. Glasg., D.P.H., has been appointed Temporary Medical Inspector under the Coal Mines Act.

Edinburgh Royal Infirmary: BROWN, K. P., M.B., Ch.B., DOUGLAS, J. A., M.B., Ch.B., COCHRANE, W. A., F.R.C.S.E., SELBY, R., M.B., Ch.B., HAMILTON, A. J. C., M.B., Ch.B., MIDDLETON, D. S., M.B., Ch.B., DOTT, N., M.B., Ch.B., BROWNE, F. J., M.D., F.R.C.S.E., ANDREW, T. F., M.B., Ch.B., and ALEXANDER, G., M.B., Ch.B., Clinical Tutors and Senior Clinical Assistants (Surgical); PORTEOUS, H. B., M.B., Ch.B., and BELL, R., M.C., M.B., Ch.B., Resident House Physicians; SMITH, ANN F. G., M.B., Ch.B., Non-resident House Physician; SOO HOCK TAN, L.R.C.P. & S. Edin., and GAVIN, F. W., M.B., Ch.B., Non-resident House Surgeons; M'GREGOR, D., M.B., Ch.B., SCOTT, R. C., M.B., Ch.B., M'GARRITY, ANNABELLA, M.B., Ch.B., D.P.H., LISTER, NORA, M.B., Ch.B., M'CART, H. W. D., M.B. Tor., TOD, MARGARET C., M.B., Ch.B., RUTHERFORD, ISOBEL S., M.B., Ch.B., BRASH, JESSIE R., M.B., Ch.B., and CLARK, ELIZABETH B., M.B., Ch.B., Clinical Assistants; RUTHERFORD, A., M.B., Ch.B., B.Sc., M.R.C.P.E., Assistant Physician; SHAW, J. J. M., M.D., F.R.C.S. Edin., and BELL, F. G., M.D., F.R.C.S. Eng., Assistant Surgeons; AITKEN, R., M.D., F.R.C.P. Edin., Assistant Physician for Diseases of the Skin; and YOUNG, J., F.R.C.S. Edin., reappointed Assistant Gynæcologist.

Royal Alexandra Infirmary, Paisley: LISTER, J. A., M.B., Ch.B. Glasg., Senior House Physician; CUNNINGHAM, W., M.B., Ch.B. St. And., Assistant House Physician; CALDWELL, J., M.B., Ch.B. Glasg., and BROWN, A., M.B., Ch.B. Glasg., House Surgeons.

University of Sheffield: PLATT, R., M.D., Ch.B. Sheff., and LISTER, C. W. A., Demonstrators in Physiology.

Vacancies.

For further information refer to the advertisement columns.

Birmingham University.—Lectureship in Midwifery and Dis. of Women.

Bolton Union, Townleys Hospital, Farnworth.—Second Asst. M.O. £225.

Bradford Children's Hospital.—H.S. £100.

Bradford Royal Eye and Ear Hospital.—H.S. £120.

British Honduras.—Asst. M.O. $2430.

Burnley, Victoria Hospital.—H.S. £200.

Cancer Hospital, Fulham-road, S.W.—Anæsthetist. Also H.S. at rate of £100.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Hon. Asst. Anæsth.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. for six months. £62 10s.

Countess of Dufferin's Fund, Women's Medical Service for India.—Two Med. Women. Rs. 550.

Dumfries, Crichton Royal Mental Hospital.—Clin. Pathologist. £400.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Morning and Afternoon Cas. O.'s at rate £120. H.P. at rate £125. Also Res. M.O. £200.

Gesto Hospital, Edinbane, Skye.—Res. M.O. £300.

Gravesend Hospital, Kent.—Jun. H.S. £150.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Med. Reg. £100.

Hull, City and County of Kingston-upon-Hull.—M.O.H. £1400.

Leeds General Infirmary, Venereal Dis. Dept.—Two Asst. M.O.'s. £500 and £250 respectively.

Liverpool, West Derby Union.—Res. Asst. M.O. £200.

Manchester Homœopathic Institution, Gorton, near Manchester.—Res. M.O. £100.

Manchester Royal Infirmary.—H.S. for Aural, Gyn., and Ophth. Depts., at rate of £50.

Manor House Hospital, Golders Green, N.W.—Sen. H.S. £200.

Metropolitan Hospital, Kingsland-road, E.—Sen. H.P. and H.S. Jun. H.P. and H.S., two Cas. O.'s for six months. Each £50. Also Asst. P.

Monmouthshire County Council.—Two Asst. M.O.'s. £500.

Oswestry, Shropshire Orthopædic Hospital.—Two H.S.'s. Each £250.

Poplar Hospital for Accidents, East India Dock-road, E.—Sen. Res. O. £200.

Royal Chest Hospital, City-road, E.C.—P.

Royal Eye Hospital, St. George's Circus, S.E.—Hon. Asst. S.

Royal National Orthopædic Hospital, 234, Gt. Portland-street.—Two Hon. Asst. Surgeons.

Royal Naval Medical Service.—Surg. Lieuts. 25s. per day.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. S. and Hon. Gynæcologist for Out-patients.

St. Mary's Hospital, W.—Director of the Dept. of General and Special Pathology, &c. £800.

St. Thomas's Hospital.—Pathologist. £500.

Stoke-on-Trent, North Staffordshire Infirmary.—Jun. H.P. £125.

Swansea General and Eye Hospital.—H.P. £175.

Wednesbury, Borough of.—M.O.H., &c. £800.

West Ham County Borough, Dagenham Sanatorium.—Asst. Res. M.O. £350.

West London Hospital, Hammersmith-road, W.—Surg. for Dis. of Women. Dermatologist. Also Hon. Medical Radiologist.

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at Caterham, Surrey.

Births, Marriages, and Deaths.

BIRTHS.

BRIMBLECOMBE.—On Oct. 9th, at Pranketts, Stoke-under-Ham, Somerset, the wife of S. L. Brimblecombe, M.R.C.S., L.R.C.P., of a daughter.

BUNTING.—On Oct. 4th, at "Warders," Tonbridge, the wife of Dr. G. L. Bunting, of a daughter.

ELLIOTT.—On Oct. 5th, at Mount Ephraim-road, Tunbridge Wells, the wife of Dr. Christopher Elliott, of a son.

HAYCRAFT.—On Oct. 14th, at 31, Cathedral-road, Cardiff, the wife of John Berry Haycraft, M.C., F.R.C.S., of a daughter.

MINNITT.—On Oct. 12th, at Kremlin-drive, Stoneycroft, Liverpool, the wife of Robert James Minnitt, M.B., Ch.B., of a daughter.

MARRIAGES.

JONES—VANE TURNER.—On Oct. 8th, at St. Peter's, Eaton-square, London, George Horatio Jones, M.R.C.S., to Muriel, only daughter of Mr. and Mrs. Vane Turner, formerly of Ealing.

DEATHS.

GIBSON.—On Oct. 12th, at King's College Hospital, James Albert Gibson, M.D., D.P.H., M.B.E., of Carisbrooke, Isle of Wight, aged 59.

LOCKYER.—On Oct. 9th, at 117a, Harley-street, Minnie Marie, the beloved wife of Cuthbert Lockyer, M.D.

LYLE.—On Oct. 9th, at Castellain-road, W., Thomas Lyle, M.D., late Medical Superintendent, Wonford House, Exeter, aged 85 years.

MORGAN.—On Oct. 11th, at Connaught-square, John Hammond Morgan, C.V.O., M.A., F.R.C.S., aged 77 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2 2 0
	Six Months	1 1 0
	Three Months	0 10 6
ABROAD	One Year	2 10 0
	Six Months	1 5 0
	Three Months	0 12 6

Subscriptions not paid in advance are charged out at the published price of 1s. per copy, plus postage. Cheques and P.O.'s (crossed "Westminster Bank, Ltd., Covent Garden Branch") should be made payable to THE MANAGER, THE LANCET Offices, 423, Strand, London, W.C. 2.

Notes, Comments, and Abstracts.

CURRENT VIEWS ON INDIVIDUAL DIFFERENCES OF ABILITY.

PROFESSOR SPEARMAN'S LECTURE.

THE lecture on this subject, delivered by Prof. C. E. Spearman, Ph.D., F.R.S., at University College on Oct. 8th, constituted the first of a course of psychology open to the public. The problem, Prof. Spearman said, was one on which his department had been engaged for many years, during which time a number of points had been established, and these could now be collected to form a more or less complete whole. There were at the present time two doctrines on individual differences of ability: one known as the doctrine of intelligence, the other as the doctrine of faculties.

The Doctrine of Intelligence.

The first was the dominant one. Everyone referred to other people as more or less intelligent; there was a readiness to stigmatise some as bright and intelligent, others as stupid and dull. "Intelligence" was first used in the biological discussions on intelligence as contrasted with instinct. There was a tendency to regard the lower animals as possessing instinct, intelligence being reserved for man. A very important development was that which subjected intelligence to tests, especially in the work of Binet and Simon, and its application in the United States, where some two million men in the army in that country were tested from this mental standpoint. In the laboratory controlled by the lecturer, 30,000 clerks for the Civil Service had been tested.

But the views of Binet experienced a set-back at the hands of the biologists, largely owing to the difficulty of deciding precisely what was meant by intelligence and what was meant by instinct. Nor were authorities agreed as to tests, one writer declaring that a tester could not confront a person with school, the many situations in which he found himself in home, workshop, farm, and politics, calling for the exercise of the capacities which, in a summary way, were known as intelligence. A well-known German authority wrote that the problem of intelligence remained a problem still. Prof. Spearman's chief criticism of this concept of intelligence was that it was grossly equivocal. Did it include memory? Many said it did not, yet memory was included in the tests. And did it include sensory perception? Binet said it did not. Was imagination a part of it? Some denied it. Was language a part of intelligence? Some authorities regarded it as the essence of intelligence, and some considered attention as the very core of it. A similar importance was assigned to movement. A further criticism of the intelligence concept was that it was not an ultimate analysis. If a scientific treatment was aimed at, it was essential to proceed to ultimates, and not to be content with conglomerates.

Another important matter was the possibility of measuring intelligence. Of 14 authorities who met and advanced their definitions, not one used his definition in framing his tests. Some writers took up a passive attitude, being satisfied to remark that it was works which were tested, and this was all that was required. A more scientific aim was to make clear what was meant by "intelligence." One definition was "The power of adapting oneself to new situations"; but what was meant here by "adapting"? Biologically, it meant anything to preserve life; it certainly included a number of different processes. His own view was that there were certain ultimate operations, and one was the finding of relations, another was the finding of correlatives. But could these powers be measured? That was not easy. On the whole, he considered that this doctrine of intelligence was at present in a far from satisfactory state.

The Doctrine of Faculties.

The other great view on the subject was that known as the doctrine of faculties, and this also had many advocates, chiefly in Germany. That country possesses an institution at which every prospective employee on German railways undergoes psycho-testing over a period of two days, the tests covering nine faculties: power of combination, fixation of place-names and numbers, concentration, observation and carefulness, reckoning, doing many things at a time, speed in work, dexterity, speed in grasping facts. Dealing with the history of this doctrine, the lecturer said it dated back at least to Plato, for at that period it was known that the sense often led the observer astray. The ancients considered that the human being had two faculties—namely, sense and intellect. To this the faculty of memory was added, and, later still, the faculty of imagination or invention. The further one known as attention was recognised in the seventh century, and subsequently language and movement. It was easy to see, therefore, why "intelligence" was such an obscure and equivocal word. The speaker had analysed the works of 33 authors on this point: 15 of them advocated the faculty of perception, 16 that of intellect, 9 that of memory, 11 that of imagination, 10 that of attention, 6 that of movement, 3 of language, while 16 advocated fancy faculties, such as the picking out of the essential parts of a story.

A good deal of criticism had been levelled at this faculties conception, and the weighty objection urged by a German authority was, that imagination was spoken of as if it were one faculty, whereas it was well known that one person would be found to have imagination for one thing, and another person for another. The same was true of memory. This became very important from the point of view of formal training. Advocates of the teaching of mathematics claimed that the mental discipline implied was a great aid to all studies requiring concentration and reasoning; but it was found that the latter might not be as effectively employed in other studies as in mathematics, and the result of measurement of the capacity for one was not necessarily an index of capacity for another. The failure to recognise this was a weakness in the German testing system as applied to railway work.

It was important to realise that classification did not involve correlation. There were three chief causes of error here. We were misled by names; because things bore the same name, the tendency was to regard them as the same. Secondly, there was the fallacy which an ancient sophist illustrated by the contention that one ate raw meat because the meat bought yesterday was raw, and that was the meat one ate, therefore one ate raw meat. The third fallacy was to regard the act of perceiving as dissociated from the object perceived; the whole—the perception and the things perceived—must be considered together.

Summing up, Prof. Spearman said it seemed that the wisest course was to teach a person what one wanted him to be able to do efficiently, and that constituted an objection to formal training. The latter largely left matters to chance, it taught general subjects in the hope that it would enable the person taught to carry through to his special needs. Hence he thought that the people who objected to formal training were in the right; it seemed to be better to go direct to the special requirement and teach that.

"LISTON PALINGS."

UNDER this heading Dr. Herbert A. Smith has written to tell us of a bungalow situated somewhere on the south coast, bearing the name "Armistice," and fenced with long Liston splints with the oval foramina and notched edges uppermost. The builder is thought to be an ex-R.A.M.C. ambulance orderly.

PAINFUL CRAMPS.

To the Editor of THE LANCET.

SIR,—Can any of your readers suggest a remedy for painful muscular cramps? A relative of mine who is crippled with rheumatoid arthritis is kept awake for hours every night by this distressing symptom, and there seems to be nothing that prevents its onset.

I am, Sir, yours faithfully,

Portsmouth, Oct. 7th, 1924. E. W. DEWEY.

TREATMENT OF MUCOUS COLITIS.

To the Editor of THE LANCET.

SIR,—Can any of your readers tell me anything new in the treatment of mucous colitis, a complaint which is dismissed with very few words in systematic works on the practice of medicine, but which causes persons suffering from it a fair amount of pain and malaise, besides undermining the general health? The patient I have especially in my mind is a young man of healthy parentage who for some months has had mucus, casts, and occasionally a little blood passing per rectum. The sigmoidoscope and the X ray after a bismuth meal show nothing abnormal. There is sometimes a little distension and slight tenderness of the abdomen. He is keeping at work, but lacks some of his usual strength and energy physically and mentally. This is a complete contrast to his state a year ago.

I am, Sir, yours faithfully,

Oct. 8th, 1924. M. C.

Dr. H. H. Taylor, of Hove, was on Oct. 9th elected by his colleagues on the town council to the aldermanic bench. He was first elected a member of the council in 1901. In January this year Dr. Taylor was placed on the Commission of the Peace for the borough.